Clinical Medicine

Original Articles for July, 1957

Clinical Medicine

Vol. IV, No. 7

CONTENTS FOR JULY, 1957

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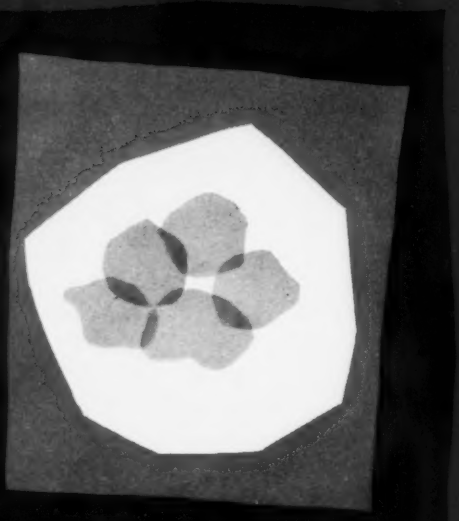

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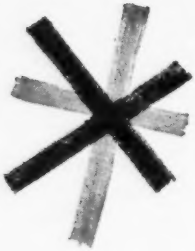

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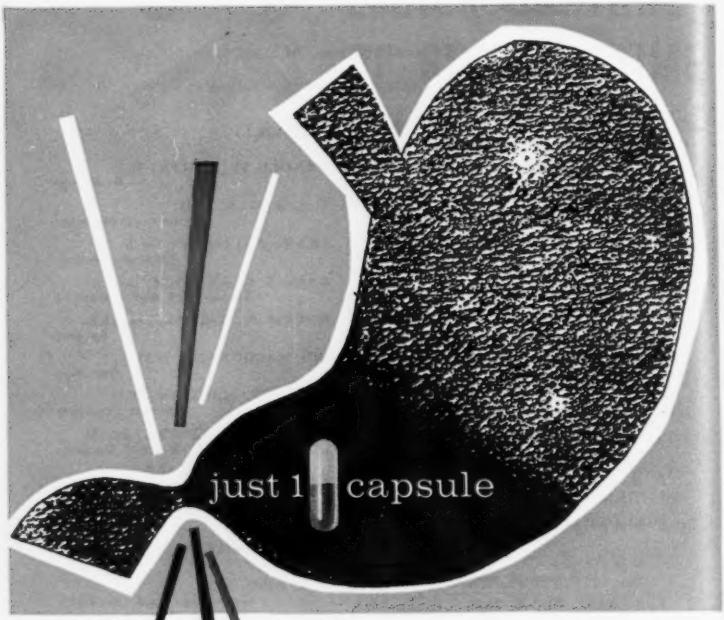

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EDITORIAL

Diagnosis and Treatment of Bursitis

An expression of reliable opinion regarding the causes and treatment of bursitis, based on knowledge of a great number of cases studied and treated

JAMES M. NORTHINGTON, M.D., *Editor*

Bursitis is a term used to cover a number of inflammations in addition to inflammation of a bursa. Bursitis as a cause of pain and disability ranks high.

Bursae are found in parts of the body where movement is likely to produce friction, e.g., where two muscles cross, where a muscle or tendon and a bone move past each other without articular contact, and between the skin and the bony skeletal prominences. Bursae are sacs lined by a one-cell synovial membrane, on a vascular bed. A bursa, acutely or chronically inflamed, may be 1 or 2 mm. thick in chronic cases of fibrous tissue. The bursa is visible by x-ray only when calcific material from a tendon ruptures into the bursal space.

Bursitis—*itis*, inflammation—may be caused by: trauma, infection, calcific tendinitis, or an unknown agent as in gout. Bursitis occurs in rheumatoid arthritis and other "collagen" diseases, but in a healthy patient bursitis is secondary to the degeneration and calcification of the tendon fibers (calcific tendinitis), noted in the elderly and in persons in occupations requiring habitual semi-abduction of the arms, as filing clerks, dentists, stenographers, machine operators.

In a fluoroscopic study of 12,122 shoulders, Bosworth[1] observed 2.7% had calcific deposits and calcific ten-

1. Bosworth, B. M., *J.A.M.A.*, 116:2477,1941.

dinitis. These were among the applicants for insurance and employees of a large insurance company. Of this 2.7%, 202 shoulders, 70 (34.6%) had some history of severe to mild pain and discomfort especially at night. In a routine chest survey in a general hospital, 5% had calcific bursal deposits.

The subdeltoid bursa is the most frequent location of bursitis and calcified deposits. The subdeltoid, subacromial and subcoracoid bursae of the shoulder are perhaps one and the same thing. Other bursae that may become inflamed include the olecranon, trochanteric, ischial tuberosity and prepatellar bursae. Eighty per cent of all cases of painful shoulder are due to subdeltoid bursitis. Calcific deposits in the supraspinatus tendon is the primary involvement in this bursitis, the bursa being only secondarily involved. The deposition of calcific granules is in the already degenerating tissues. Bacteriologic studies have proved negative. Minor trauma or unaccustomed exertion may precede the acute episodes.

DIFFERENTIAL DIAGNOSIS

The term "bursitis" is often used erroneously to describe pain and stiffness in various parts in connective-tissue disorders. Calcific tendinitis by x-ray does not prove the diagnosis of bursitis and a negative x-ray does not exclude it. Bursitis of the shoulder is very frequent in rheumatoid arthritis. The shoulder-hand syndrome resembles shoulder bursitis. Symptoms are: pain in the region of the shoulder joint, aggravated by motion and worse at night, which may radiate to the neck, arm, insertion of the deltoid, forearm and even to the finger tips; limitation of motion because of pain; tenderness just below the acromial process, at times over the entire shoulder, and muscular atrophy.

Chronic adhesive subdeltoid (subacromial) bursitis is caused by adhesions between the roof and the floor of the subacromial bursa. Symptoms are atrophy of the deltoid and spinatus muscles, often with coldness and stiffness of the hand and atrophy of the skin. There may be inability to move the arm (especially abduction and external rotation). It may result from prolonged bedrest following hemiplegia, coronary infarction, etc.

THERAPY

The average acute syndrome is recovered from spontaneously in a short time. Salicylates, moist heat or hot fomentations and rest may suffice. In more severe cases codeine should be added. If, in 48 hours, such measures have not produced a substantial improvement, adrenocortical steroids are indicated either systemically or locally. Contraindications to steroid therapy are active peptic ulcer, tuberculosis, severe hypertension, congestive heart failure, infections and psychosis.

Decompression by needle is successful when the needle punctures and deflates the tense deposits. The offending material need not, but may, be aspirated. The use of procaine with this procedure is also useful. Prednisolone or hydrocortisone locally is especially useful in cases where there is contraindication to systemic use of steroids.

In acute traumatic bursitis the best treatment is the aspiration of the fluid, gentle compression, and heat. In any kind of bursitis, last to be employed is incision with removal of calcific deposits in the tendon. After

the relief of pain, passive and active exercises for the shoulder re-establish normal motion and use.

In chronic bursitis ("frozen shoulder" syndrome), if symptoms are mild and restriction of motion moderate, exercise, heat and massage may be the only therapy required, using the arm as much as possible, arm above the head while sleeping. In more severe cases injections of prednisolone acetate or hydrocortisone acetate should be used. Passive stretching without anesthesia is very useful. Gentle, firm, steady manipulation under anesthesia may be necessary. After manipulation, a vigorous program of physiotherapy and active and passive exercise. ACTH or cortisone for three or four days after manipulation.

Extra-Articular Rheumatic Conditions, Schering Corporation, 2:1-4,1957.

Long Range Complications of Poorly Controlled Diabetes

The degenerative complications of diabetes, including premature arteriosclerosis, retinitis, neuritis and intercapillary glomerulosclerosis result, to a large extent, from poor control of the disturbed glucose and lipid metabolism of diabetes. The incidence of these complications is much lower in the patient who has best controlled his diabetes. Our responsibility is to teach patients the great importance of maintaining this control and helping them attain the incentive and skill to carry it out.

Murison, P. J., *J. Louisiana State M. A.*, 108:137-141,1956.

ORIGINAL ARTICLE

Coronary Thrombosis: A New Concept of Mechanism and Etiology

Evidence is presented in support of the theory that this disease is brought about by a nutritional deficiency, rather than surplus of fat in diet

W. J. McCORMICK, M.D., *Toronto, Canada*

Coronary thrombosis is defined as a clotting of blood in the coronary arteries of the heart, caused usually by a slowing of the circulation or changes in the blood or blood-vessel walls. This thrombotic lesion usually results in occlusion of the involved artery and sudden death from myocardial ischemia.

A brief survey of the pathology of vascular thrombosis in general may help to clarify the problem. Ziegler,[1] in his monumental work on general pathology, states that "The three major causes of thrombosis are: retardation of the blood current, local changes in the blood-vessel wall, and pathological changes in the blood itself," and that "One of these factors alone does not ordinarily cause thrombosis." He further states that "When the intima is injured by compression or crushing, or by irritant chemical agents, we may observe blood platelets adhering to the vessel wall at the injured point and soon they cover the site of the injury in several layers. Then red blood corpuscles and leucocytes may separate from the circulation and join in the deposition. Under favorable conditions the thrombus thus formed may

1. Ziegler, E., General Pathology, 8th edition, William Wood & Co., 1900.

undergo organization by the invasion of sprouting capillaries and endothelial fibroblasts from the intima, thus forming healthy granulation tissue and consequent healing by cicatrization, with consequent contraction, so that in time the lesion may appear as merely a thickening of the vessel wall." More often, however, under present conditions, the granulating thrombotic tissue fails to cicatrize and takes on the nature of "proud flesh," this building up erratically effects complete occlusion of the blood vessel, which, in the case of the coronary artery, usually results in sudden death or a slowly resolving infarction of that portion of the myocardium involved.

PREDISPOSING FACTORS

In the extensive literature regarding thrombosis and atherosclerosis it is found that the recognition of a disturbance in the intercellular ground substance of the arterial intima is common to all. This collagenous break-down of the so-called "cement of life" results in instability and fragility of the connective-tissue components of the intima, and may give rise to intimal or subintimal hemorrhage, involving the vasa vasorum, and resulting in thrombogenesis.[2,3,4] In 1941 Paterson,[5] in a series of autopsies on coronary thrombosis cases, frequently found a capillary hemorrhage at the site of the thrombosis, which he regarded as an etiological prelude resulting from deficiency of vitamin C. In support of this conclusion he found that 81% of coronary cases in hospital practice had a subnormal blood-plasma level of ascorbic acid, compared to 55.8% in a corresponding group of general public-ward cases. Accordingly he suggested that coronary patients be assured of an adequate intake of this vitamin. Other forms of local injury to blood vessels acting as precursors to thrombotic lesions are reported by Josue,[6] who found that repeated intravenous injections of adrenalin caused vascular thrombosis, and by Solowjew,[7] who found that local cauterization precipitated thrombosis, and by Taylor,[8] who found that local freezing had a similar effect. More recently Willis,[9] in a study of atherosclerosis, concluded that the mechanical stress applied in the stretching of an arterial wall was a predisposing factor in the development of thrombi, and Burton,[10] showed that 4 factors contributed to the stretching: blood pressure, surrounding tissue support, radius of the artery, and curvature of the artery.

VITAMIN C DEFICIENCY

Counteracting these stresses are the tissue components of the arterial wall, and all such stresses increase the local need for adequate vitamin C to maintain the stability and integrity of the connective tissue involved. Willis[9] has also shown that scurvy (or extreme deficiency of vitamin C) in guinea pigs is effective in producing thrombotic lesions which are morphologically identical with those of the human disease. In earlier studies of blood vessels under deficiency of vitamin C, Laseque and Legroux,[11] in humans, and Find-

2. Aschoff, L., Lectures on Pathology, Paul B. Hoeber, Inc., 1924.
3. Duff, G. L., *Arch. Path.*, 20:81,1936.
4. Moon, H. G., & Rinehardt, J. F., *Circulation*, 3:481,1952.
5. Paterson, J. C., *Canad. M. A. J.*, 44:114,1941.
6. Josue, M. O., *Compt. rend. Soc. de biol.*, lv.:1374-1376,1903.
7. Solowjew, A., *Ztschr. f. d. ges. exper. Med.*, 69: 94,1929-30.
8. Taylor, C. B., et al., *Arch. Path.*, 49:623,1950.
9. Willis, G. C., Report Annual Meeting and Proceedings, R. C. P. & S. of Canada, Oct. 30-31, 1953.
10. Burton, A. C., *Am. J. Physiol.*, 164:319,1951.
11. Laseque, C. & Legroux, A., *Arch. Gen.*, 2:680, 1871.

lay,[12] in experimental animals, found fat deposits in capillaries and small veins. Koch[13] observed hyaline degeneration and fat deposits in the arteries of human scurvy victims, and Lamy et al.[14] reported widespread atherosclerosis and arterial thrombosis in young people among fatal cases of malnutrition in prison camps which certainly were not cases of cholesterol over-feeding. It is thus obvious that deficiency of vitamin C plays a major role in the pathogenesis of thrombotic disease.

RESTORATION OF COLLAGEN WITH VITAMIN C

It is of interest that in normal vitamin-C status the intercellular cement substance (collagen) which normally maintains the cohesive stability of connective tissue generally, including the blood vessels, becomes semiliquid under pronounced deficiency of this vitamin, as reported by Wolback and Howe,[15] and its glycoprotein constituent is released into the blood stream. The normal adhesive status of this cement substance is quickly restored by administration of vitamin C, as shown by Wolbach.[16] It should also be noted that an increase in serum - glycoprotein is found in many disease conditions, including the rheumatic diseases, traumatic and hemorrhagic shock, burns and cold, physical injuries, infections, cancer and myocardial infarction.[17,18,19,20,21] It is equally noteworthy that a definite deficiency of vitamin C is found in these same conditions, as well as a tendency to concurrent thrombotic disease. Woolling and Shick,[22] of the Mayo Clinic, have recently reported the frequent concurrence of cancer and thrombosis.

CHOLESTEROL

Much attention in recent years has been given to the possible role of fat metabolism in thrombotic disease. This perhaps had its origin in the fact that cholesterol crystals are usually found as a component of the thrombus, but this is to be expected as it is a normal constituent of blood, bile, nervous tissue, egg yolk, and all animal fats and oils. Albumin is also a normal constituent of all body tissues, and of thrombi; but a high-protein diet has not been incriminated. It is true that higher blood levels of cholesterol are found at times in thrombotic disease, but this could be coincidence, a possible third unrecognized element being the common factor. Biskind[23] claims that deprivation of the B and C vitamins, or their depletion in the liver by detoxication of exogenous poisons, may result in liver damage and loss of its ability to metabolize cholesterol, with consequent high blood levels of same. He states that "patients so affected are usually advised not to eat liver, eggs and other cholesterol-rich foods, and this interdiction further impairs nutritional status. When these patients are placed on a regimen combining the available crystalline vitamins and desiccated or cooked whole liver, there

12. Findlay, G. M., *J. Path. & Bact.*, 24:446,1921.
13. Koch, W., (1889), Quoted by Aschoff, L., Scorbut, Jena, 1919.
14. Lamy, M., et al., *Bull. et mem. Soc. med. d. hop. de Paris*, 445,1946.
15. Wolbach, S. B. & Howe, P. R., *Arch. Path.*, 1: 1,1926.
16. Wolbach, S. B., *Am. J. Path.*, 9:689,1923.
17. Simpkin, B., et al., *Am. J. Med.*, 6:734,1949.
18. Pirani, C. L. & Catchpole, H. R., *Arch. Path.*, 51:497,1951.
19. Abassy, M. A., et al., *Lancet*, 233:182,1937.
20. Andreae, W. A. & Browne, J. S. L., *Canad. M. A. J.*, 154:69,1946.
21. Dugal, L. P. & Therien, M., *Cancer Research*, 25:244,1945.
22. Wooling, K. R. & Shick, R. M., *Proc. Staff Meet., Mayo Clin.*, 31:1956.
23. Biskind, M. S., *J. Ins. Med.*, 1951.

is usually a dramatic reduction in blood cholesterol despite the greatly increased intake." Furthermore, Willis[9] has found that the feeding of cholesterol to animals causes a depletion of vitamin C, and he suggests that this may indirectly produce injury of the intimal ground substance and consequent thrombosis. This concept is supported by the observation of Reid,[24] that parenteral injection of vitamin C inhibits experimental atherosclerosis in both scurvy and cholesterol feeding.

BRITISH OBSERVATIONS

With further reference to cholesterol, Duguid[25] says: "Nevertheless the incidence of coronary disease did not seem to decline in this country (Great Britain) during the war when our intakes of fats was restricted, nor, for this matter, do rabbits with cholesterol lesions die of coronary thrombosis." He submits evidence that atherosclerosis may be caused by thrombosis, rather than vice versa. He concluded that the atherosclerotic foci were produced by the break-down of older and more deeply buried deposits (repeated layers of mural thrombi). He further states that "in cholesterol-feeding experiments far more cholesterol is needed to produce lesions than is ever likely to be produced from a normal human diet." Wolffe[26] says: "A high fat and high cholesterol intake is no more the cause of atherosclerosis than a high carbohydrate intake is the cause of diabetes mellitus," and that the routine use of anticoagulants is still open to question.

EXPOSURE TO STRESS

The stress of modern life, another factor predisposing to coronary disease, could act by increasing the body requirement of vitamin C. Any noxious stimulus increases production of epinephrine, and this in turn causes depletion of vitamin C in the adrenal gland.[27] Exposure to the stress of surgery may act in this way to cause a fall in the blood level of vitamin C,[28] which could account for the development of postoperative thrombosis. It has also been shown that the noxious stimulation of the sensorium of the respiratory system by tobacco smoke, by acting on the adrenal gland, releases epinephrine, thereby temporarily increasing blood sugar[29] as a protective response of the organism,[30] while at the same time accentuating deficiency of vitamin C.

From these data it would seem that coronary thrombosis may be a deficiency disease rather than one of surfeiting, and that the deficiency is mainly that of vitamin C. Long continued deficiency of vitamin C would lead to weakness and fragility of connective tissues generally, and in this case the coronary arteries in particular, resulting in stretching and consequent hemorrhagic lesions of the intima. The reaction of the organism is the deposition of a thrombus at the site of injury. This thrombus under normal conditions should develop into normal scar tissue, but the deficiency which caused the initial intimal lesion prevents such conversion resulting in an ineffectually organized thrombus, with occlusion of the artery.

24. Reid, M. E., *Proc. Soc. Exper. Biol. & Med.*, 68:403,1948.
25. Duguid, J. B., *Lancet*, 6818:1954.
26. Wolffe, J. B., *New York State J. Med.*, 56:2361, 1956.
27. Pirani, C. L., *Metabolism*, 1:197-222, 1952.
28. Bartlett, M. K., et al., *Ann. Surg.*, 111:1-26,1940.
29. Haggard, H. W. & Greenberg, L. A., *Science*, 79:165,1943.
30. McCormick, W. J., *Am. J. Hyg.*, 22:214,1935.

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It would seem paradoxical that deficiency of vitamin C should prevail where fresh fruits rich in this vitamin are so abundant and where scurvy is thought to be a disease of the past. But, of thousands of chemical tests on human adults to determine body level of vitamin C, 90% were found deficient. Our infants and young children are better provided for in this respect. Great deterioration comes from candy, soft drinks, etc. in childhood, and early adult life. Tea, coffee, tobacco and alcohol further distorts the normal nutritional pattern. Tobacco smoking, the greatest despoiler of vitamin C, depletes the body of the vitamin by the adrenal reaction, and the toxins of the smoke have a destructive action on the stored vitamin. Vitamin C is chemically a potent reducing and oxidizing agent, and when taken internally it reacts with the circulating smoke poisons, resulting in reciprocal neutralization. Over ten years ago, in laboratory and clinical tests, it was found that the smoking of one cigarette, as ordinarily inhaled, destroyed the vitamin-C content of an average orange. This observation was confirmed by researchers in the United States[31] and in Poland. This finding precludes the likelihood of any steady smoker attaining an optimal body level of this vitamin from dietary sources. In hundreds of chemical tests for vitamin-C status in smokers a normal level of this vitamin has yet to be found.

In a study of 151 fatal cases of coronary thrombosis,[32] 97% had been smokers—58% heavy smokers, average age at death 47 years; 42% light or moderate smokers, average age at death was 58½ years. In a recent Amercian Cancer Society survey of 187,000 men of 50 to 70 years, the number of deaths from coronary heart disease was found to be almost twice as high in the cigarette smokers as in the non-smokers.

Buerger's disease, or thromboangiitis obliterans, first recognized 50 years ago, involves the peripheral arteries of the extremities in multiple thrombotic lesions in the vasa vasorum ultimately leading to arterial occlusion and gangrene. Amputation of the affected extremities and interdiction of smoking is the usual treatment. This disease, like coronary disease, showed a marked predilection for males in early reports, but recently a marked leveling off in sex incidence has been noted. Regarding the etiology Silbert[33] says: "The importance of tobacco as the exciting cause of this disease must be stressed. In over a thousand instances of this disease studied by the writer a typical case in a non-smoker has not been seen. Cessation of smoking regularly arrests the disease, while continued use of tobacco is coincident with progression. . . .In several early cases of the disease, cessation of smoking, without any treatment whatever, has resulted in disappearance of all symptoms." Buerger's disease is not infrequently concomitant with coronary thrombosis. Lewis[34] says: "It is to be recognized that in these patients tolerance of exercise may be masked by breathlessness or anginal pain; this, by limiting the exercise taken, will conceal a weakness of the legs, just as, reversely, a severe intermittent

31. Bonquin, A. & Masmanno, I., *Am. J. Digest. Dis.*, 20:75,1953.
32. McCormick, W. J., *L'Union Medicale du Canada*, 74:1205,1945.
33. Silbert, S., *Surg., Gynec. & Obst.*, 67:213,1935.
34. Lewis, T., Vascular Disorders of the Limbs, MacMillan, London, 1936.

lameness may conceal angina of effort by prohibiting the amount of exercise necessary to induce it."

SEX RATIO OF INCIDENCE

The sex incidence of coronary disease is also suggestively significant. Levine[35] says: "The sex distribution of this disease is most striking, — a ratio of 3½ males to 1 female. It is difficult to explain the great frequency of coronary thrombosis in the male . . . a factor may be the possible role of tobacco . . . Certainly the consumption of tobacco has been in the past almost entirely confined to men. A more definite answer may be apparent before long if the coming generation of women continue the smoking habit that has become so general." This forecast was made in 1929 and already the answer seems to be in evidence. Prior to 1929, the sex ratio of incidence of coronary thrombosis was estimated as high as 7 males to 1 female. Recent figures (Toronto Health Department) indicate this ratio to be 2 males to 1 female.

The rising incidence of coronary and other forms of thrombotic disease has followed closely the increase in tobacco consumption. Cigarette consumption in Canada was 5 billion in 1935 and 25 billion in 1955, an increase of 500%. In this same time the population has risen 40%. A parallel situation prevails in the United States where the tobacco consumption per capita is double that of Canada. During this period the incidence of coronary thrombosis, Buerger's disease and post-operative thrombosis has shown a closely proportionate increase. There has been no such increase in the consumption of cholesterol-rich foods during this period.

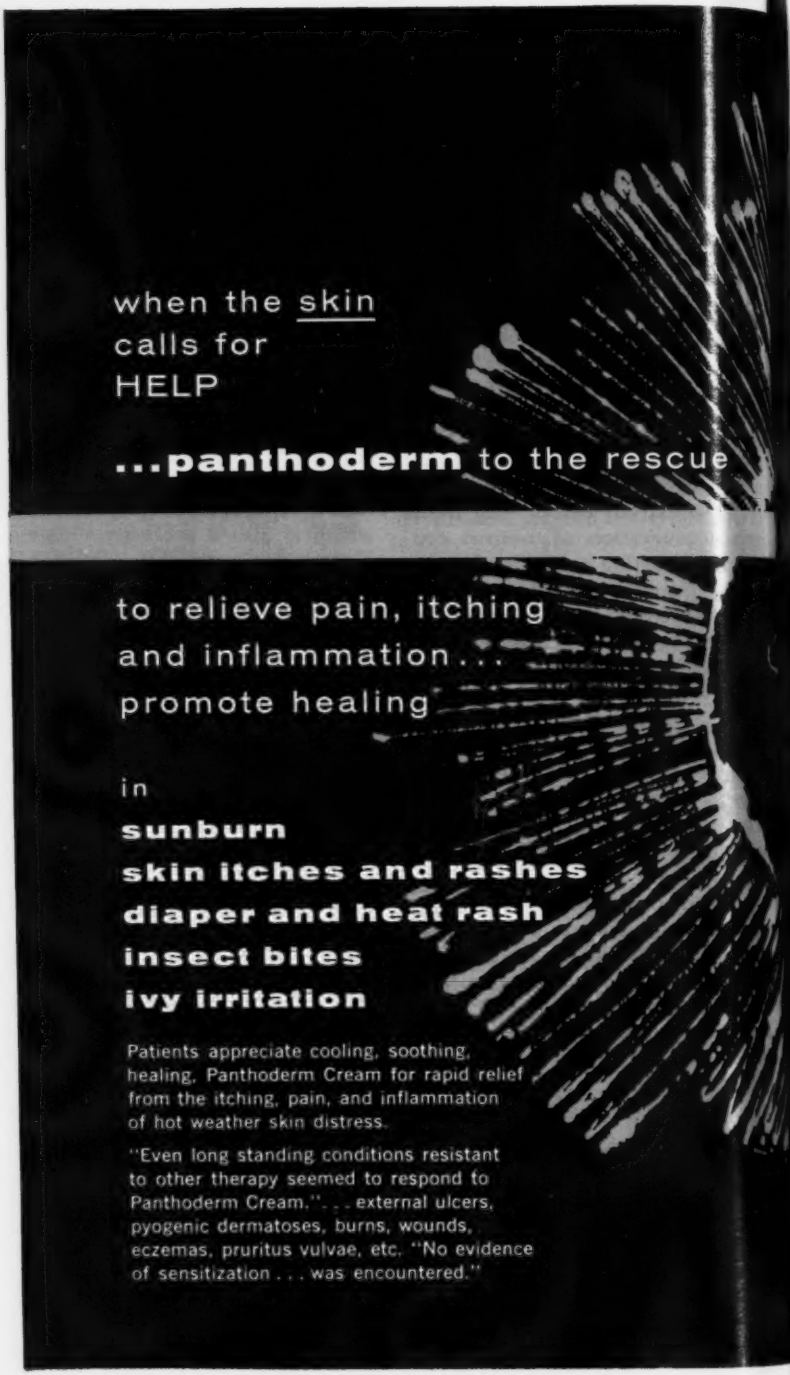
35. Levine, S. A., Coronary Thrombosis, Williams & Wilkins, Baltimore, 1929.

SUMMARY

The author submits evidence in support of his belief that thrombosis is not in itself a pernicious development, but rather a protective response of the organism, designed normally to effect repair of damaged blood vessels by cicatrization. High blood pressure, excessive stretching of blood vessels, and deficiency of vitamin C, resulting in rupture and bleeding of the intima at the site of such stress initiate the development of the thrombus by means of the clotting of the blood, which is also a protective reaction. This multiple protective mechanism should be sustained and controlled by physiological means (vitamin-C-therapy) rather than suppressed by anticoagulants with their dangerous side effects.

The author believes that an optimal body level of vitamin C offers the best natural means of effecting healthy scar tissue, and claims that the initial intimal hemorrhage precipitating thrombosis would not occur if adequate prophylactic use of this vitamin were made in advance, and furthermore, that the thrombosis, if already forming, would thus have been more readily converted to healthy scar tissue with consequent contraction, thus precluding the development of occlusion with its dire results.

A close parallel is drawn in the incidence and pathology of coronary thrombosis and Buerger's disease, and the increasing incidence of these diseases is statistically related to the universal use of tobacco, which the author claims is the major factor in accentuating vitamin-C-deficiency.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ORIGINAL ARTICLE

Clinical Use of an Acid Polymer Coated Aspirin

This aspirin, given in doses large enough to produce optimum symptomatic and curative effect, caused no or negligible irritation of the gastric mucosa

A. A. INTROCASO, M.D., *Collingswood, New Jersey*

With the synthesis of salicylic acid in 1874, salicylate therapy came into its own. Beginning in 1899, acetylsalicylic acid (aspirin) rapidly replaced salicylic acid in the treatment of acute rheumatic fever and rheumatoid arthritis, and now has come to be by far the most widely used analgesic. The large doses of aspirin required in the treatment of arthritis often cause gastric disturbances, therefore an enteric coating to prevent the release of aspirin in the stomach should practically eliminate gastric distress.

The aspirin should pass undissolved through the stomach and then dissolve readily in the intestine. Until recently, the only available enteric coated aspirin preparations have been those coated with either a shellac-stearate mixture, or a combination consisting chiefly of stearic acid and carnauba wax, which often fails to disintegrate properly in the intestine, or disintegrate readily in the stomach. When an acid polymeric coated aspirin* became available for investigational purposes, a two-phase evaluation was made to determine if it would overcome these inadequacies. First, *in vitro* experiments were carried out to determine the disintegration rate of this preparation and of two widely-used enteric coated aspirin preparations,

*Ecotrin,® Smith, Kline & French Laboratories, Philadelphia, Pa.

and second, clinical studies were undertaken to determine the efficacy of the new enteric coated aspirin in treating a variety of arthritic and muscular pains, comparing it with plain aspirin.

METHOD

In vitro disintegration rates were determined by using a modified U.S.P. XV method.† Twenty-five tablets of each of the three products were gently agitated for two hours in 2,500 ml. of artificial gastric juice at 37° C., and 25 more of each of the three preparations, in artificial intestinal juice for four hours at 37° C (98.6°F.) Each run was repeated once.

In vivo study was on 42 patients who had varying degrees of gastric intolerance to plain aspirin in doses required to bring about analgesia. Thirty-eight of them had been suffering from rheumatic diseases—osteoarthritis, rheumatoid arthritis, myositis, and bursitis—for one month to 20 years (average, 7.5 years); three, from sacroiliac strain from one to two weeks (average, 10 days); and one, from whiplash injury for one week. The patients' ages ranged from 22 to 84 (average, 58).

WITH PLAIN ASPIRIN

All of the patients had been treated with plain aspirin in dosages ranging from 25 to 60 gr./day (average, 45 gr.), and had suffered from gastric distress attributable to aspirin. Since the aspirin was given as unmarked tablets, the patients did not know what they were receiving. The dosage given was up to the maximum each could tolerate without experiencing great distress. Under these conditions, 30 patients (71%) considered their medication unsatisfactory because of gastric disturbances and inadequate analgesia; 12 patients (29%), though reporting mild gastric distress, obtained satisfactory analgesia.

WITH ENTERIC COATED ASPIRIN

The patients were now switched to the enteric coated aspirin, in doses ranging from 50 to 90 gr./day (average, 75 gr.). The average length of this treatment was three months for the arthritic patients and five days for those with injuries. None of the patients was told that the enteric coated preparation contained aspirin. They were examined at least once a week — the injured patients more often — and their reactions to the treatment were recorded.

RESULTS

Clinical results were graded according to the following criteria: "satisfactory" means that the patient tolerated the medication and obtained symptomatic improvement, "unsatisfactory" that the patient suffered marked gastric disturbances, or that the degree of analgesia was inadequate.

The enteric coated aspirin was found by 41 of the patients (97%) to be superior to plain aspirin, in relieving pain and in not causing gastric disturbances. The dosage range of aspirin in the enteric coated form averaged 38% higher than that level found possible with plain aspirin, which must account for the superior analgesic effect. The 12 patients who experienced gastric distress along with satisfactory analgesia on plain aspirin were free of gastric distress on the enteric coated drug, and considered their analgesia to be even

†Tablet disintegration tests conducted by Mr. Albert Micelli, R.Ph., Cooper Hospital, Camden, New Jersey.

TABLE I

COMPARATIVE DISINTEGRATION RATES
USING ARTIFICIAL GASTRIC AND INTESTINAL JUICES

	Gastric Juice 2 hours @ 37°C.		Intestinal Juice 4 hours @ 37°C.	
Product	Number of Tablets	Coating Changes	Number of Tablets	Time Elapsed/number of Tablets Dissolved
Ecotrin (acid polymer coating)	50	color changes only	50	23 minutes/49 tablets 30 minutes/50 tablets
Product II (carnauba wax-stearic acid coating)	50	color changes only	50	1½ hours/24 tablets 2 hours/46 tablets 3 hours/50 tablets
Product III (shellac-stearate coating)	50	tablets retained shape but crushed easily	50	4 hours/none (tablets were soft—none were dissolved)

more satisfactory. Only one patient could not tolerate the enteric coated preparation. This patient, a 47 year old woman with rheumatoid arthritis of 10 years' duration, was intolerant of any form of aspirin in doses as low as 40 gr./day. No patient reported passing tablets in the stool.

DISCUSSION

The new enteric coated aspirin prevents the release of aspirin until it is in the intestine, saves the gastric mucosa from irritation and makes possible the high doses necessary for effective medication. To the extent that the new product brought analgesia without gastric distress, it confirmed the *in vitro* study showing rapid disintegration once it was in contact with the intestinal juices. The *in vitro* study also confirmed experiences with the two other products tested. The onset of action with both the wax-stearate coated product and with the shellac coated aspirin was very slow. The analgesic efficacies of the two were poor, and tablets were often passed in the stool.

SUMMARY

1. An *in-vitro* study was run to determine the rate of disintegration of a new enteric coated aspirin in artificial gastric and intestinal juices. This aspirin, coated with a waterproof acid polymer, was compared, by similar tests, with aspirin coated with a shellac mixture and with a carnauba wax-stearic acid mixture.
2. None of the products dissolved in the gastric juices. In intestinal juices the polymer-coated aspirins dissolved after 30 minutes; the wax-coated aspirins, after three hours; and the shellac-coated aspirins did not dissolve at all.
3. A clinical study was conducted on 42 patients who suffered gastric distress with plain aspirin. They were treated first with plain aspirin, and then with a new enteric coated aspirin. Thirty-eight of them suffered from rheumatic dis-

eases, and four from injuries.

4. When treated with plain aspirin in doses averaging 45 gr./day, all of the patients suffered from gastric upsets and 30 of them complained of insufficient analgesia.
5. When treated with the enteric coated aspirin, 41 of the patients (97%) noted satisfactory relief of pain and a complete absence of gastric disturbances.
6. One patient could tolerate neither plain nor the enteric coated aspirin.

CONCLUSIONS

This enteric coated aspirin may be given whenever large doses are indicated, or when any dose is required by patients with a gastric hypersensitivity to aspirin. The enteric coated preparation has the advantage of almost completely eliminating aspirin-induced gastric distress, of allowing the patient to take doses of aspirin considerably in excess of those possible with plain aspirin, and of keeping the patient unaware of the fact that he is taking aspirin.

Prevention of Aspiration of Gastric Contents During General Anesthesia

The normal emptying time of the stomach is not a safe guide for assuming an empty stomach. Fatal aspiration of gastric contents has been reported 15 hours after the last known meal. Any trauma, as well as the onset of labor, can delay emptying by many hours. A Miller-Abbott tube in the upper intestinal tract does not ensure an empty stomach. Patients with massive upper gastrointestinal bleeding do not have their stomachs adequately drained by a Levin tube.

Anesthesia by means of local and regional block eliminates the hazard because a conscious patient can handle regurgitated material.

We have designed a double-lumen gastric tube with an inflatable balloon that can be passed easily through the nose into the stomach preoperatively. The tube is 16 F., 122 cm., with inflatable balloon 5 cm. from end, and the tip has three perforations. Once the tube is in the stomach, the balloon is inflated with 50 cc. of air, and the tube is withdrawn gently until slight resistance is felt. At that point, the tube is securely fastened to the forehead by 1-cm. adhesive going completely around the head. Then, general anesthesia is rapidly induced. For further protection, a cuffed endotracheal tube may be inserted when the patient is well anesthetized.

We have used this tube with general anesthesia in five cases of intestinal obstruction and marked gastric distention in which peripheral circulatory collapse contraindicated the use of spinal anesthesia. Also, it was used in a patient known to have ingested solid food two hours before the induction of general anesthesia. In none of these five patients was there any evidence of fluid or semisolid materials in the pharynx while the tube was in the stomach. It is recommended that the tube be left in place until the patient regains consciousness.

Gilman, S., et al., *New England J. Med.*, 255:508-509, 1956.

ORIGINAL ARTICLE

Care of Patients With Clefts of the Lip and Palate

Main factors which should determine the optimum time for closure of clefts are presented and evaluated; speech training is advantageous

EDWARD A. KITLOWSKI, M.D., *Baltimore, Maryland*

Statistics indicate that one child in every 762 births will have a cleft of the lip or palate, or both.[1] Heredity plays a minor part, if any. Studies in Canada and Denmark indicate that the risk of recurrence of the defect is 3% in the cleft palate, and 6.4% in the case of the cleft lip, with or without a cleft palate.[2,3] Clefts involving the lip alone will be considered separately from those involving the alveolar process and the palate.

Years ago, through careful histological studies, it was proven that there is a lack of development of tissue. Many surgeons then changed their plan of approach to the closure of the clefts of the lip, with so great an improvement in the appearance of the closed lip, that now, except for some few very severe cases, the result is a pleasing appearance. The consensus of opinion is that a lip closure should be done when the patient is from four to six weeks old, depending on the child's general physical condition. This permits the child to lead a normal life and relieves the parents of anxiety.

1. Ivy, R. H., *Plastic & Reconstruct. Surg.*, 9:121-129,1952.
2. Fraser, F. C., & Baxter, H., *Am. J. Surg.*, 87:656-659,1954.
3. Fogh-Andersen, P., Inheritance of Harelip and Cleft Palate. Copenhagen, 1942, Arnold Busck.

OPTIMUM AGES FOR CLOSURE

Many surgeons and some orthodontists have urged that closure of the palate be delayed until the patient is four to six years of age. They reason that the areas of bone growth which concern the forward thrust of the upper jaw are injured by early operations. In several ways, this reasoning appears to be fallacious. The extent of the cleft varies greatly in different cases. The amount of separation in the alveolar process, which occurs between the maxillary process and the premaxillary bone on one or both sides, determines the size of the closed arch of the upper jaw. The lateral incisor teeth fail to appear, and the canine teeth may also be missing. This indicates that there has been a failure of development of bone in these areas, hence the length of the upper jaw will be less than normal. This has nothing to do with the forward thrust of the bones since the region of the molars is not influenced by the deformity.

OTHER CONSIDERATIONS

There is also deficiency of tissue in the hard and soft palate. Some patients have broad flaps of tissue which are also long in the area of the soft palate and uvula. Others have very broad clefts with scant tissue left in the palate, therefore the soft palate is very short. This can also occur when there is no cleft in the alveolar process, creating a problem of effecting closure without impairing the function of the palate. It appears evident that early closure should not impair the end result beyond the damage resulting from the absence of tissue. In many cases, there is more impairment than can be accounted for by the original defect. It is this situation which causes much controversy and many arguments for a later closure of the palate. Some dentists try to use the situation to insist on dentures to carry little children over to an older age. This is a very expensive, unsatisfactory and dangerous procedure. Dentures must be replaced at least twice a year in a growing child; there must be eternal vigilance on the part of the parents to avoid accidents with the denture; and the advantage gained is questionable.

SOME FACTORS IN POOR RESULTS

The old theory that all the tissue is there, but has failed to unite, is still used as a basis for procedures. A pin is pushed through both sides of the upper arch in the region of the premolars and a turnbuckle applied, which is tightened every few days, causing the bones to bend. The upper arch gradually loses its curve and begins to have the shape of a horse shoe. Closure is then possible, but the resulting deformity will cause the worst kind of malocclusion, the premolars resting inside the teeth in the lower jaw. It also disfigures the face, and a deformity of this type is irreparable.

The removal of the premaxilla or its incorrect adjustment in relation to the maxilla will cause an angulation in the arch, a deformity which makes correction of the malocclusion almost impossible. Packing of the lateral incisions, or the use of wire for tension sutures, produces fibrous tissue which will contract with ill effect on the location of the teeth. The teeth may be pulled inward, thus resulting in a severe deformity.

The attempt to do too much at one time at a too early age may result in a failure of the suture line to hold, with further loss of vitally important material. The hard palate should be closed first; the soft palate one year later. The first operation should not be done until the patient is at least one year old. No mortality and a very high percentage of success justify these conclusions. Even with careful effort to obtain every possible benefit from the material at hand, the speech may be very poor.

SPEECH TRAINING

A vital factor in many cases is the training of speech. A child two years old will not cooperate with strangers, so formal training must be delayed. However, the mother should give the child toys which the patient can blow; balloons, horns, etc. The mother also helps the child to enunciate words, especially those with an "S" or "K" sound. The posterior portion of the tongue is usually large, because it has been used to plug the opening. This makes it difficult to extend the tip of the tongue and to point it behind the upper arch, which is necessary to make certain, clear sounds. Constant and patient training will accomplish much. A shortening of the upper arch provides a smaller chamber for a larger tongue. The gradual adjustment of the tongue to its chamber takes time and requires patience on the part of the parents.

SUMMARY

Clefts of the lip should be closed when a child is four to six weeks old.

Clefts of the hard palate should be closed when the child is one year old.

Clefts of the soft palate alone can be closed when the child is eighteen months old.

Clefts of the soft palate, in a complete cleft, should be closed when the patient is two years old.

These have been selected as the times for best possible results, assuming a good general physical condition of the patient.

There is a deficiency of tissue, in bones and soft parts, which can play a great part in the resulting malocclusion, and this is not influenced to any great extent by the time selected for closures.

Placing dentures in the mouths of young children is a dangerous practice, expensive and of questionable value.

ORIGINAL ARTICLE

Acute Glomerulonephritis

Children are particularly susceptible to this disease; diagnostic procedures, diet, and many specific recommendations for treatment are discussed

JOHN T. LOWRY, M.D., *Laredo, Texas*

Acute glomerulonephritis is characterized by hematuria albuminuria, edema and hypertension. It is usually a disease of childhood, and the typical patient is a child, 5 to 10 years of age. Frequently the mother's attention is directed first to the fact that the baby is swollen, or that its urine appears dark. The swelling is often noticed first in the face. The patient does not appear very sick as a rule.

Examination discloses a pale, listless, edematous child, eyelids swollen, facies thick and puffy, and lips gross. The urine has a gun-metal color; the blood pressure is high, and the pulse pressure small.

Usually there is a history of an acute infection, or an immunization within the preceding two weeks. With surprising regularity, one learns that the child had *two* diseases—e.g., measles and whooping cough—at the same time; or that a "shot" caused a severe reaction, and this was followed by some acute infectious disease.

The symptoms are swelling; scanty, dark urine; headache, possibly visual disturbances, and rarely convulsions.

LABORATORY FINDINGS

The urine sample shows 4-plus albumin, red cells, and casts; its color is dark, smoky green. A marked anemia is common, the total

serum protein low, and there is a reversal of the albumin-globulin ratio.

Treatment is directed at the control of infection, relief from edema, increasing the urine output if azotemia is present, and the neutralization of histamine.

Penicillin should be given in large doses—1,000,000 units of aqueous solution every three hours for a day or two, then 600,000 units of a long-lasting procaine penicillin three times daily. If the patient is sensitive to penicillin, some other antibiotic may be given parenterally.

ANEMIA

The blood cells and hemoglobin should be brought to normal by the liberal use of citrated whole blood. The amount needed is calculated as follows: 1/10 the normal weight of the child in pounds is the number of pints of blood which should be in its body. This figure multiplied by the percentage of the normal number of red cells=the number of pints which the child needs; e.g. a child weighs 100 pounds, has 3 million R.B.C., 3/5 the normal, so needs 2/5; 2/5 of 10 is 4. This patient should be given 500 cc. of blood in four hours, and 250 cc. daily until the red cell count is 4.5 to 5.0 millions.

HYPOPROTEINEMIA

Lack of blood protein is frequently first in importance. Human serum albumin, especially if convulsions occur, may be life-saving. Twenty to 50 cc. should be given as quickly as possible to reduce cerebral edema. Because of the danger of transmitting hepatitis, pooled plasma should not be employed unless there is nothing else available. If whole plasma is required, whole blood should be used until the anemia is corrected, and, if more plasma is needed, it should be drawn off a flask of whole blood which has been allowed to settle. Correcting the anemia is usually adequate.

As soon as the patient can eat, he should be placed upon a high protein, salt-free, high-calorie, high-vitamin diet. Meat, skimmed milk, eggs, cheese, jello and ice cream are taken well. Large amounts of vitamin C are required. Commercial protein supplements are usually unpalatable and poorly tolerated.

ANTIHISTAMINICS

Because I feel that an antigen-antibody reaction is taking place in these patients, an antihistamine is used; 25 mg. of Benadryl three times daily acts also as an admirable sedative.

The use of steroids in this disease is controversial, but Meticorten, 5 mg. three times daily, has seemed to be of great benefit.

Children who have received large amounts of citrated blood should have an occasional 5- to 10-cc. intravenous injection of calcium gluconate. A multivitamin preparation should be employed in about double the usual dosage.

FLUIDS

A careful intake and output measurement should be made. The total daily fluid allowance should not be more than twice the urine output without careful consideration. Diuretics do little good.

Babies respond well to love and kindness. Stick needles in them as little as possible and carefully explain the necessity when such parenteral therapy is necessary.

ORIGINAL ARTICLE

Spontaneous Rupture of the Esophagus

This condition generally presents itself as a diagnostic problem in severe chest pain of sudden onset; if treated promptly, recovery is to be expected

WILLIAM K. SWANN, M.D., *Knoxville, Tennessee*

Spontaneous rupture of the esophagus occurs most often in the middle-aged man who has vomited after a heavy meal, or after overindulgence in alcohol, or both. Chest pain in many of these cases will be of such severity as to strongly suggest myocardial infarction. Still, the syndrome is usually easily recognized clinically, and failure to make the correct diagnosis most often can be ascribed to a lack of familiarity with the syndrome, or failure to keep it in mind in the differential diagnosis of severe chest pain.

This condition's importance is perhaps out of proportion to its incidence, inasmuch as it is a completely curable lesion. If prompt surgical intervention is undertaken, recovery is the rule. Without operation, the condition is usually fatal, and the longer the delay, the poorer the outlook.

COURSE OF THE DISEASE UNRECOGNIZED

The history may be that of a man, approximately fifty years of age, who is stricken suddenly with severe chest pain. He was well until a short time previously, when he became nauseated and began to vomit. During the retching, he was seized with sudden pain which was substernal and extended through to the back.

The doctor recognizes immediately that a medical emergency exists. The patient is writhing in agony, he

is cool and clammy, but not at first in shock—it may be suspected that it might be an attack of myocardial infarction. Morphine does not relieve the pain. On transfer to the nearest hospital, an electrocardiogram is made, and when this is reported as within normal limits, the doctor may suspect that his diagnosis was erroneous. On re-examination, the patient is found in shock and subcutaneous emphysema is palpable in the neck. Blood transfusion and other measures are instituted to treat the patient for shock, but he does not respond. Within 12 to 24 hours, the patient may expire, and autopsy will then reveal a linear rupture of the esophagus on the left posterolateral wall. The mediastinum and left pleural space are discolored by action of the acid gastric juices, and fluid and food particles are present within these spaces.

DIAGNOSIS

Spontaneous esophageal rupture should be suspected in any patient who has agonizing chest pain following the act of vomiting. This vomiting may have been spontaneous or self-induced. It may have followed overindulgence in food, alcohol, both, or neither.

The patient with prostrating chest pain, subcutaneous emphysema and hydropneumothorax has almost certainly suffered rupture of the esophagus. The correct diagnosis is usually arrived at on the basis of the history, physical examination, and a chest x-ray film which is made in the erect position. Special studies generally are not necessary. Confirmation of the diagnosis may be had by aspirating liquid or solid food from the pleural space, or by aspirating methylene blue previously given by mouth. A swallow of iodized oil may be visualized escaping into the mediastinum, or the pleural space, by use of fluoroscopy or on the chest film.

TREATMENT

When prompt surgical intervention is undertaken in these patients, recovery is the rule. Without operation, the condition is usually fatal.

Operation is undertaken as soon as the diagnosis is made. Elaborate preparation is not necessary. Fluid and electrolyte replacement is begun, and the chest is opened through the bed of the subperiosteally resected seventh left rib. On entering the pleural space, acid gastric juices are encountered, usually with food particles. The pleura is discolored by the action of the digestive juices, and the mediastinum is distended. On opening the mediastinal pleura, additional quantities of gastric juices and food particles are encountered and aspirated. The esophageal rent is usually located on the left posterolateral wall just above the esophageal hiatus. A gastric tube may be passed by the anesthetist and inserted into the stomach by the operator. This facilitates aspiration of stomach contents and prevents its further regurgitation into the operative field.

The esophageal rent is then easily closed over the tube in two layers with silk. The mediastinal pleura is left widely open. Thorough lavage of the mediastinum and pleural space with large quantities of saline is carried out. Intercostal tube drainage is instituted and the chest is closed. The gastric tube and the chest drainage tube can usually be removed after the second postoperative day.

In a patient so managed, recovery is to be expected. He is usually discharged in a week or ten days, at which time he is able to take a regular diet without difficulty.

SUMMARY

Spontaneous rupture of the normal esophagus is a surgical emergency. When recognized early and treated promptly by surgical closure, recovery is to be expected. Untreated, the disease is almost always fatal.

This catastrophe is to be differentiated from myocardial infarction and surgical emergencies of the upper abdomen. It usually occurs in persons who have previously been in good health.

Early Return to Work Will Benefit Patients

Many patients may be returned to work earlier than has been customary. Following tonsillectomy, two large industries showed 13.2 days lost, a public health survey 9.1 days; and the U.S. Air Force, 7.7 days lost. After hernioplasty, these industries showed 33.6 to 51 days of convalescence, and the public health survey an average of 72.9 days. An insurance company averaged 57 days lost, and the Air Force only 19.9 days.

In the absence of definite contraindications, the Air Force returns men to partial duty within 6 days following fractures; other orthopedic cases are returned to duty while they are still in casts.

Following 5,700 cases of surgery reported in 1953, there were no reports of cases of pulmonary embolus or incidence of recurrent hernias. No marked difference was found in days lost by various age groups.

Wenger, D. S., *Industrial Medicine & Surgery*, 25: 307,1956.

Orinase Prescription Information

Dosage: Patients responsive to Orinase may begin therapy as follows:

First day
3 Gm.

Second day
2 Gm.

Third day
1 Gm.

Usual maintenance dose 1 Gm.
(must be adjusted to patient's response)

To change from insulin to Orinase:

If previous insulin dosage was

less than
40 u./day . . . reduce insulin 30% to 50% immediately; gradually reduce insulin dose if response to Orinase is observed.

more than 40 u./day . . . reduce insulin 20% immediately; carefully reduce insulin beyond this point if response to Orinase is observed. In these patients, hospitalization should be considered during the transition period.

Caution: During the initial "test" period (not more than 5 to 7 days), the patient should test his urine for sugar and ketone bodies three times daily and report to his physician daily. For the first month, he should report at least once weekly for physical examination, blood sugar determination, and white cell count (with differential count, if indicated). After the first month, the patient should be seen at least once a month, and the above studies carried out. It is especially important that the patient, because of the simplicity and ease of administration of Orinase, does not develop a careless attitude ("cheating" on his diet, for example) which may result in serious consequences and failure of treatment.

Supplied: In 0.5 Gm. scored tablets, bottles of 50.

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ORIGINAL ARTICLE

A New Therapeutic Approach to Aging

A report on an effective and conservative treatment for impotence, the male climacteric syndrome, male senility and other conditions associated with gonadal decline

WILLIAM L. GOULD, M.D.,* *Albany, New York*

"The concept that aging is an endogenous process inherent in all living things and not basically dependent on stress and disease is increasingly accepted,"[1] and points up the importance of treating ailments in "patients over forty" on an etiological basis rather than symptomatically. There is evidence that impotence, male climacteric, male senility, sterility, cardiovascular disorders and many other ailments are associated with gonadal decline.[2] Prolonged use of androgens in the male is undesirable for the hormone does not stimulate the gland which secretes it. Because inhibition and ultimate atrophy of the gland may result from prolonged androgen administration,[3] experiments were conducted and clinical evaluations made of many preparations in an effort to find a hormone or other medication that would serve as an effective treatment. It was found that a combination of chorionic gonadotropin (human), thiamine hydrochloride and 1 (+) glutamic acid† afforded excellent results in males suffering from the effects of gonadal decline. This preparation has been in use for over ten years.

*Chief of Staff, Jewish Home and Hospital for the Aged, Troy, N. Y.

1. Wakerlin, G. E., *J.A.M.A.*, 163:950,1957.
2. Simeons, A. T. W., *Am. J. Geriatrics*, 4:36,1956.

†Glukor®, Research Supplies, Albany, New York.

3. Best, C. H., & Taylor, N. B., The Physiological Basis of Medical Practice, 6th Edition. The William and Wilkins Co., Baltimore, 1953.

RATIONALE OF TREATMENT

The synergistic action of this formulation provides and enhances the beneficial properties of three therapeutic agents:

1. *Chorionic gonadotropin* is considered to give good results in the treatment of male sex disorders. It stimulates the interstitial cells of the testis, inducing the secretion of androgens, thereby causing the growth of the accessory sex organs. It is of value in the treatment of cryptorchidism when the descent of the testis is not impeded by anatomic abnormality, and has been employed to stimulate spermatogenesis in an undeveloped testis and to restore the normal spermatogenic function suppressed as a result of disease. Sterility is said to have been cured with the use of this hormone, and it has been employed in various types of hypogonadism.[3]

2. *Thiamine hydrochloride* was the first of the vitamins to cure deficiency disease. Deficiencies of thiamine which are insufficient to cause definite disease may be manifested in symptoms of the nervous, cardiovascular and gastrointestinal systems. Psychic changes such as depression, irritability, nervousness, fatigability, quarrelsomeness, anxiety, moodiness, lack of initiative and interest, and poor concentration and memory may result from the lack of this vitamin, as may dyspnea, palpitation, tachycardia, embryocardia and other cardiovascular symptoms.[3]

3. *Glutamic acid* is an amino-acid for which antiepileptic activity was reported in 1943. As mental and physical alertness was believed to be improved, many clinicians have been investigating the role of glutamic acid in cerebral metabolism and function. The brain is sensitive to a reduction in the supply of glucose; when the blood sugar falls to a certain point, mental confusion, muscular incoordination, convulsions and loss of consciousness result. Since glutamic acid is capable of restoring consciousness to a subject of hypoglycemia, it is thought that this amino-acid is oxidized directly by the brain and that it may also cause the liberation of glucose from the liver through an adrenaline-like action.[3] There is also evidence that glutamic acid decreases the ammonia intoxication in the body and/or prevents its occurrence.[3]

IMPOTENCE

Sixty-seven cases of impotence,[4] of varying duration and degree, were treated over periods of from two months to six years. The subjects were business men, mechanics, professional men, merchant seamen, etc., from 28 to 67 years of age. Excellent results were obtained in 85% of these cases within 14 days on a dosage of 1 cc. given intramuscularly twice weekly. Maintenance dose was 1 cc. intramuscularly given weekly or monthly. Reinstitution of treatment was of benefit to patients who had recurrences as a result of discontinuing therapy. If patients did not respond within four weeks of treatment, medication was discontinued.

STERILITY

Two cases of oligospermia that had been under treatment for four to five years were quickly benefited by this treatment. The wives became pregnant within four months, producing full-term pregnancies and normal deliveries.[5]

4. Sapirstein, M. R., *Proc. Soc. Exper. Biol. & Med.* 52:334,1943.
5. Gould, W. L., *Med. Times*, 84:302,1956.

MALE CLIMACTERIC

In 120 cases of male climacteric,[6] 1 cc. intramuscularly twice a week made the patients feel alert and relaxed and gave them a sense of well-being, usually within the first six injections. Patients were maintained on 1 cc. injections weekly or monthly. Treatment was effective regardless of age and/or pathology. There were no side reactions, no contraindications to therapy, nor antagonism with other medication.

MALE SENILITY

Treatment was instituted in 237 cases[6] of male senility—74 patients were between 60 and 70 years of age, 68 between 70 and 80 years of age, 60 between 80 and 90 years of age, and 35 patients were over 90 years of age. Length of treatment was from two months to seven years, with an average of 2½ years. There was improvement in most patients after the first injection, others improved following the second or third injection. The pinched, anxious expression disappeared, a slight flush replaced the ashy pallor, the general tremulousness and digital tremor subsided, dyspnea gave way to easier breathing, chest pains, nycturia and cough became less frequent, and there was a sense of well-being. During a five year period, when treatment was administered to the male guests of the Jewish Home and Hospital for the Aged in Troy, New York, the mortality rate was reduced to 11% as compared to 25% for most homes of this type.

TONIC EFFECT

There is evidence that this medication is useful as a tonic for patients over 40 years of age. Many ailments in this age group are associated with gonadal decline, and are dependent upon the hormone output of the anterior pituitary lobe. Patients who were treated for a long time depended less upon other medications for other conditions associated with gonadal decline. There were no contraindications, nor was there antagonism with any other medication.[7]

CASE HISTORIES

A merchant seaman, 67 years of age, was unable to have sexual relations for five years, and suffered from weakness, lack of endurance and myocarditis. After one injection, a general improvement was observed. Following the eighth injection, he was able to have satisfactory intercourse once or twice weekly. After three years of treatment, symptoms recurred several times when the patient discontinued injections for four or more weeks. Reinstitution of therapy brought prompt improvement.

A businessman, 32 years of age, for six months had been unable to satisfy his wife sexually, otherwise he was in good health. Satisfactory results were obtained after the third injection. After two months of biweekly injections, the patient had to return only occasionally for the next two months.

A mechanic, 28 years of age, and a businessman, 35 years of age, had each been married for seven years, during which time they had tried unsuccessfully to produce a child. Each had been treated by urologists periodically for four to five years for oligospermia. After 22 injections given twice weekly, the businessman's wife became pregnant. Following 33 injections, the mechanic's

6. Gould, W. L., *Med. Times*, 79:154,1951.

7. Gould, W. L., *Med. Times*, 79:622,1951.

wife became pregnant. Both women had normal, full-term deliveries, and the businessman's wife subsequently gave birth to another child.

A merchant, 50 years of age, had complained for six months of tiredness and lack of endurance. It was difficult for him to finish a day's work. He was depressed, irritable, and took even normal situations too seriously. His hair suddenly turned gray, his complexion assumed an ashy pallor. After dinner he rested or slept until the next morning. Despite all this rest, he would awaken still feeling tired. After the first injection he promptly experienced a feeling of well-being. As treatment was continued, he lasted through his entire work day, felt stronger, did not require an evening nap, and was less irritable. This improvement continued as long as he received the injections. The symptoms recurred when injections were discontinued for from three to six weeks.

A man, 83 years of age, whose general appearance was good, gave a history of emphysema and bronchiectasis of long standing. Following an episode of bronchial pneumonia, the patient was continuously plagued with a persistent, productive cough which kept him awake at night. He became very uncooperative and unreasonable with the staff at the Home for the Aged, as well as with his wife. He was insulting and demanding, and refused prescribed medication. He was suspicious of his treatment, ate very little, became listless and stayed in his room. There was no apparent change on injections given once a week, so they were increased to three times weekly. On this regimen his appetite gradually improved, and his general attitude became more pleasant and cooperative. When injections were discontinued for two weeks, his behavior changed so that it was necessary to reinstate therapy. A sense of well-being was maintained with one injection every five days.

CONCLUSIONS

Glukor affords effective and conservative treatment of impotence, sterility, the male climacteric, and male senility.

It may be used regardless of age and/or pathology, without producing side reactions.

No organic contraindications have been reported to date, nor has antagonism with other drugs been observed.

Numerous communications from physicians relating excellent results with its use corroborate the original clinical studies reported upon in the literature.

ORIGINAL ARTICLE

The Doctor's Bag

Items in the doctor's bag should be checked frequently to ascertain that the essentials are always included and that the non-essentials are removed

EDWIN MATLIN, M.D., *Mt. Holly Springs, Pennsylvania*

Since the contents of the doctor's bag may spell the difference between life and death in an emergency, a knowledge of the theoretically ideal bag should permit one to develop his own philosophy toward this essential symbol of general practice. The doctor's bag represents an emergency unit. It must be carried by hand. It should contain essentials only, and its contents should be checked frequently. A call in a rural area may mean the urgent need for an antibiotic, anesthetic or analgesic; 20 miles in the country may be an emergency, whereas the same situation in the city may be remedied in 15 minutes.

A nationwide survey published in 1952 revealed that more than 50% of the doctors throughout the United States carried certain items. This list, which will appear quite complete to some and incomplete to others, displayed carelessness in assembling a physician's bag. For an emergency unit, a reflex hammer is scarcely an essential item. Surgical instruments may be kept in a separate kit in the car or put in as needed. A person who is lacerated severely will be carried to the office or to a hospital before calling for a physician. A mildly lacerated individual, who could wait 15 to 30 minutes more until the physician arrived, could wait another 15 to 30 minutes to be transported to the

doctor's office where a thorough job could be done, under aseptic conditions and in surroundings which are familiar to the doctor.

ESSENTIAL EQUIPMENT

Emergency drugs include seconal or phenobarbital, morphine or demerol, and merthiolate or alcohol. In truly rural areas, where medication is still dispensed, a small case containing some two dozen medications frequently used is a necessity. Many doctors find it convenient to keep in the trunk of the car other bags or boxes containing items he may need in rare situations. A doctor who does rural obstetrics keeps a sterile obstetrical kit in his car. Surgical instruments, oxygen tank and masks are carried by many doctors. Splints and first aid kits for burns or accidents may be kept in separate labelled containers. Frequent checks, to make sure that important items have not been consumed, and a critical overhauling to eliminate the samples which have been thrown in, will keep the doctor's bag furnished so as to enable him to render best service with a minimum expenditure of time and effort.

One may add those items which are needed for a particular day or night call, and remove them before answering the next call. Unless the bag is checked frequently, there is danger of it becoming a catch-all for detail men's samples. The greater the number of items in a bag, the greater the possibility of running out of an important item.

Doctors in practice for many years say that, prior to the day of the telephone, when it was necessary for the farmer to saddle his horse or hitch him to his buggy and come out and "fetch" the doctor, house calls were relatively infrequent. The telephone makes it comfortable for the patient to call the doctor and have the doctor dress and come out.

It did not take long for me to realize that two to five house calls a day could easily consume the best part of my available time. It became necessary for me to analyze the reason for the calls and at the same time investigate the possibility for cutting down on the number of house calls.

HOUSE CALLS FOR CHILDREN

The most frequent reason for being called, either during the day or the night, is an apprehensive mother with a sick child, with fever, which causes the parents to fear to bring the youngster to the office. The first time I am called, I respond at once, and when I get there, I proceed to give a rather thorough physical examination and take an adequate history. Then I suggest taking the child back to the office for fluoroscopic examination, assuring the parents that the baby will be in no danger if properly clothed, and the father may follow in his car. At the office, I make needed further examinations and emphasize the more adequate facilities in the office. I ask to see the patient the following day. The majority of children will be improved within 24 hours, and by getting the parents into the office, I have demonstrated a willingness to go on house calls; I have demonstrated equipment which is available to analyze and improve the health of the entire family; I have demonstrated that children can be bundled up and taken out in cold weather without any detrimental results; and I have overcome any possible objec-

tions to my suggestions, in the future, that the youngster be brought to the office instead of my going to the home of the patient.

I do not even carry adhesive tape to strap an ankle, for if I am called to strap an ankle, and I do so in the home, I inevitably shall be called out to strap another ankle. Therefore, the patient is forced to come back to the office with me to have the ankle strapped, at which time the point is emphasized that, since they are in the office, I will only charge for an office call rather than for a house call. In this way, the financial saving to the parents is emphasized also.

I do not mean to imply that house calls should never be made. Far from it! There are occasions when transportation is not available for the patient, when the patient is physically infirm and incapable of coming to the doctor's office. These and other situations require house calls, but with a little forethought and planning, it is possible to eliminate a large number of unnecessary calls, and the doctor lives longer.

Prevention of Bowel Obstructions

The placing of abdominal incisions is an important consideration in the prevention of wound disruption in the early post-operative period, and in the prevention of disabling post-operative hernia in later life.

The vertical, muscle-splitting incision is too commonly used, particularly in the upper abdomen, where it is, of necessity, oftimes a fairly long incision. Its tendency to wound disruption is notorious, even in the absence of clinical evidence of wound sepsis. It is under greater strain during the immediate post-operative period than the oblique or transverse incision. In the lower abdomen, particularly in the moderately obese, elderly individual, especially if drainage must be employed, one should give careful consideration before abandoning an approach through an oblique incision to an acute inflammatory lesion.

Whenever a vertical incision is made in a poor-risk patient, if there is likelihood of post-operative distention, and particularly in all secondary closures, the wound closure should be made with through and through sutures, including all layers, and these sutures should stay in 21 days.

External hernia strangulation accounts for 35% to 40% of the cases of intestinal obstruction. We should exercise zeal in the prevention of obstruction by curing hernias early. In operating on incarcerated hernia, the sac is opened and its contents inspected before releasing the constricting band.

O'Donnell, E. E., *J. Maine M. A.*, 47:97-100, 1956.

ORIGINAL ARTICLE

Anuria

The most effective methods that may be used for catheterization, and medications that aid in the treatment of anuric conditions

VERNON D. STANDISH, M.D., *Big Timber, Montana*

Anuria, failure to void, occurs when kidneys are capable of producing urine, but some form of mechanical obstruction prevents voiding, as well as when the kidneys fail to secrete.

In the former case, mechanical obstruction will be found in the bladder or lower in the urinary tract, unless the patient has only one functioning kidney. The odds against simultaneous blockage of both ureters or both kidney pelves are almost astronomical. Obstruction of the kidney pelves by sulfonamide crystals was once a notable exception to this rule, but since the introduction of the more soluble sulfonamides and triple sulfonamide combinations, such obstructions are practically unheard of.

The presence of a dilated bladder calls for immediate catheterization. A metal catheter, used gently and with a light touch, is preferable, as it can be maneuvered past an enlarged prostate median bar, and a click can be felt if a stone is encountered anywhere. If this instrument is not available, a small-caliber urethral sound may serve, again being careful to use no force. If the point of the sound is directed properly, it will practically fall in place, but a false passage is likely if the operator is rough or impatient. Removal of the sound may be followed by a spontaneous flow of urine, but

if not, the way has been made much easier for the passage of a rubber catheter on a metal director. Suprapubic cystotomy is rarely necessary if the foregoing procedures are carried out carefully.

Extravasation, when present, is evident, and this is one situation where catheterization should not be attempted. Instead, immediate suprapubic cystotomy should be done, during which a catheter is threaded through the urethra from the inside and clamped. If this is successful, an indwelling mushroom catheter is inserted for continuous suprapubic drainage. After a week, the suprapubic tube is removed, and drainage carried out through the catheter until the fistula has closed. Periodic dilations then must be carried out for six to eight months to avoid the formation of a stricture. If passage of the catheter through the urethra is not possible, the suprapubic drain is still used, and adequate skin drains are placed to care for the extravasated urine. Then the patient is referred for transperineal urethroplasty.

Non-secretory anuria may be due to hypotension, shock, or severe dehydration as well as to nephrosis or nephritis. When shock or hypotension is the cause, treatment of the responsible condition constitutes the correct treatment of this type of anuria. Whole blood, plasma, and plasma expanders, such as Dextran, intravenous saline or glucose solutions are useful, but these will be more effective if used in conjunction with Levophed. Injection of 10 mg. of desoxycorticosterone acetate will result in less capillary leakage, and the required amount of replacement fluids will be halved.

The presence of dehydration calls for intravenous fluids, but when circumstances do not permit their use, the patient may "drink his way" to proper hydration—but not with the use of water alone. A suitable solution for drinking can be made by dissolving one teaspoon of table salt and ¼ teaspoon of baking soda in a quart of water.

Nephrosis, however caused, is a progressive and usually an incurable, degenerative condition. Treatment is valuable in the early stages, but can help little at the anuric stage. Ammonium chloride is given for its diuretic effect. The use of mercurial diuretics has been condemned in cases of severe kidney damage, but their strongest opponents will be found using them after other means have failed. The absence of red blood cells in the urine points to the condition known as nephrosis, but the presence of red blood cells in small numbers in a urine specimen does not rule out this condition.

When anuria has lasted for more than 24 hours, the differentiation between nephrosis and nephritis can be of no value to the patient. Heroic therapeutic measures may be tried, but usually cardiac failure complicates the case, and not even the intravenous fluids can be permitted in amounts sufficient to be of any avail. For such gravely ill patients, the course to follow is dictated by the patient's family. If they are apt to be upset and demanding, refer the patient, at the earliest moment, to some large and famous clinic. If they are intelligent and understanding, treat the patient gently and faithfully in his home. From a humanitarian standpoint, the latter course is to be preferred, but neither method can be seriously criticized.

ORIGINAL ARTICLE

Carbarsone Therapy for Amebic Colitis

Prolonged diagnostic procedures have little practical value for the patient; this therapy successfully eliminated amebic infestation in many cases

JOSEPH B. RADDIN, M.D., *Phoenix, Arizona*

In amebic colitis, a positive report on a stool specimen is seldom obtained unless, in a case of acute diarrhea, the specimen is passed in the office, or laboratory, and examined immediately. Cysts seem to be difficult to identify although the motile amebae are easily detected. Culturing does not appear to increase the accuracy of the stool examination. Liquid stools, the result of purgatives, seldom contain motile amebae. With new methods of preservation, cysts can be identified by a well-trained technician. The incidence of positive stool examinations is reported as being 2 to 15%,[1,2,3] higher from diarrheal stools. When 4 to 6 stool specimens are studied from each individual, the incidence of positive reports approaches 100%.

Most doctors of experience prefer to treat the patient on diagnosis by clinical methods unless reliable culture methods or complement-fixation, or similar examinations, are available. One should not lose sight of the fact that *E. histolytica* is still a killer[4] and the cause of much chronic illness and disability,[5,6]

When the cecum is tender to palpation, whether or not any other

1. Bockus, H. L., et al., Gastroenterology, Vol. 2, W. B. Saunders Company, 1944.
2. McHardy, G., *Gastroenterology*, 25:616-617,1953.
3. Davies, J. A., *Proc. Roy. Soc. Med.*, 48:491-496, 1955.
4. Editorial, *J.A.M.A.*, 160:393,1956.
5. McCullough, N. B., *Gastroenterology*, 23:299-302,1955.
6. Rees, C. W., *Gastroenterology*, 23:307-309,1955.

portion of the colon is also sensitive, the possibility of amebic colitis should be considered. If, in addition, typical amebic rectal lesions are seen on proctoscope examination, the diagnosis can be made as confidently as from a positive stool report. Should the proctoscopic examination not confirm, a sigmoidoscopic examination is indicated. Lesions of the mucous membrane of the colon higher up will often be found even when the stool reports are negative.[7,8] Barium enema has been of little use as a diagnostic measure.[3]

When suspicion is aroused by cecal tenderness to palpation, and lesions are seen on proctoscopic or sigmoidoscopic examination, and when therapy with emetine[9] and Carbarsone promptly relieves the symptoms, the diagnosis can be considered established. Certainly when patients, who have been ill for long periods of time with indigestion, "colitis" and constipation or mushy or watery stools, become free of complaints and feel well, the physician has fulfilled his obligation to the patient.

It has been stated[9] and experience in this study has confirmed it, that three or four daily doses of emetine hydrochloride, ½ grain given in the buttock, will relieve acute manifestations of amebiasis, amebic hepatitis and colitis. If no relief has been obtained by the fourth to sixth injection, the probability of amebic infestation should no longer be entertained. Emetine injections can be continued three times weekly until a total of 10 to 12 have been given, or fewer if relief has been obtained. At this dosage, few toxic manifestations have been noted.

Of 110 patients diagnosed and treated for amebic colitis, 61 received emetine in the dosage suggested. The site of injection regularly becomes painful which precludes its use in any but the most painful complaints and disabling diarrhea. Three patients had transitory tremors as side-effects.

Of these 110 patients, 98 received Carbarsone in one to four courses of 20 capsules each at monthly intervals. One capsule morning and evening was usually prescribed, three capsules daily for a few patients. It appears that few cases of acute or chronic amebic colitis will be cured unless one or more courses of 20 capsules of Carbarsone are prescribed, in addition to several other amebicides, in sequence.

Of these 98 patients, 51 took one course of Carbarsone, 32 took two courses, 12 took three courses and 3 took four courses, at monthly intervals, before recovery was complete.

Of these patients, 46 had what was believed to be amebic hepatitis in addition to amebic colitis, yet this treatment produced no ill effects.

From this group, 22 patients apparently had systemic amebiasis in addition to amebic hepatitis and colitis. None of them had any toxic effects.

Not once was a drug reaction noted. Despite systemic and liver involvement, adverse reactions were not noted in elderly patients—the oldest at 84 years of age received ten injections of emetine.

SUMMARY

Emetine hydrochloride subcutaneously is a valuable amebicide, par-

7. Weiser, N. J., et al., *Ann. Int. Med.*, 38:1002-1026,1953.
8. De la Portilla, R. H., et al., *Gastroenterology*, 27:93-97,1954.
9. Jordan, Jr., P. H., *Ann. Surg.*, 141:70-75,1955.

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ticularly for acute and painful manifestations of the disease. The injections are painful, and toxic effects were noted to a serious degree in 3 of 61 patients.

Carbarsone is highly effective as an agent for the treatment of amebic colitis; it is also apparently free of toxic side-effects. In this study no toxic effects were noted, even in elderly patients with liver involvement, on repeated courses of therapy. It appears to me that Carbarsone is invaluable in ridding the intestinal wall of amebic lesions. Many preparations render the stool negative for the parasite but do not sterilize the mucous membrane lesions which are responsible for relapse.

Reinfection, as distinguished from relapse, is also an unsolved problem. It is recommended that a course of Carbarsone be prescribed every two or three months as prophylaxis against reinfection.

Incidence of Urinary Calculi Among Patients in General Hospitals

For the country as a whole, it was estimated that 9.47 persons per 10,000 population were admitted with this diagnosis during the year 1952. Rates ranged from 19.25 and 18.42 from South Carolina and Georgia at one extreme and 5.81 and 4.31 from Wyoming and Missouri at the other. The incidence in the northern part of Alabama was less than half that in the southern part, and it was lower among Negroes.

Boyce, W. H., et al., *J.A.M.A.*, 161:1437-1442,1956.

Sarcoidosis

Laboratory and x-ray data are presented on eighteen cases of Boeck's sarcoid with biopsy confirmation

JOSIAH FULLER, M.D., and FRANK J. HIRSCHBOECK, M.D.,
Duluth, Minnesota

Boeck's sarcoid, formerly felt to be primarily a skin disorder, has been known to involve any organ or tissue. With increasingly accurate chest x-ray investigations, it is becoming apparent that the systemic form of the disease is actually more common.

Eighteen patients were followed up for periods of 1 month to 6 years, with an average followup period of 22 months. The most common presenting complaints were cough, enlarged peripheral lymph nodes, and chest pains. A tuberculin skin test was done on 16 patients, and was negative in 15; the sedimentation rate was elevated in 13 of the 15 patients on whom it was done. Total serum proteins were above normal in 6 patients, averaging 8.6 grams percent. The serum globulin was elevated in 4 patients, averaging 3.9 grams percent, and the albumin in 2 patients averaged 5.9 grams percent.

Chest x-rays were made in all 18 patients; 7 had x-ray evidence of enlargement of the hilus and mediastinal lymph nodes without pulmonary parenchymal involvement. In 5 patients there was a small spontaneous pneumothorax, the nodules in the pulmonary parenchyma were gross and the reticulated appearance was in the form of a coarse network. Three patients had extremely small

nodules, but close observation of the film disclosed a reticulated pattern in the infiltrate. Four patients had radiographic findings resembling "soft fluff." Only 1 of the 18 patients had negative x-rays during the entire period of followup. Serial chest x-rays on patients with pulmonary or mediastinal changes due to Boeck's sarcoid are characterized by their instability.

All of these 18 patients had histologic examination of tissue, interpreted as being consistent with Boeck's sarcoid. In each case the biopsy showed epitheloid cell granulomas without caseation. The hard tubercle may also be found in tuberculosis, leprosy, histoplasmosis, beryllosis and brucellosis, but when a typical clinical picture is combined with the histologic appearance of noncaseating granuloma that exhibits a peculiar uniformity of stage of development in each tubercle, a diagnosis of Boeck's sarcoid is made. In 16 patients the scalene or cervical lymph nodes were the source for the biopsy material. In 2 cases a liver biopsy showed the characteristic histologic picture, and the bone marrow, skin, and hilus lymph nodes each showed a positive biopsy on one occasion.

The operation is kept simple, and most of them are done under local procaine hydrochloride infiltration anesthesia in a manner similar to that described by Daniels. Incision is made above the clavicle, and the dissection is carried below the omohyoid muscle. In most cases it is best to explore the right scalene area, since the lymphatics from the right lung and the lower portion of the left lung drain to the right side.

Cortisone was given to 8 patients, 3 of whom received the drug elsewhere before the diagnosis was made. Cortisone is reserved usually for the patients with extra-pulmonary involvement or progressive symptomatic pulmonary disease. The drug was of material benefit in the 5 patients to whom it was given for treatment of diagnosed Boeck's sarcoid.

None of the 18 patients has died; 7 are completely asymptomatic; 8 have symptoms which are not disabling, 3 are suffering from an appreciable disability. All of the patients in the disabled group complained of cough and dyspnea and had a chest x-ray that appeared coarsely nodular and reticular, but only 1 of the patients who eventually became asymptomatic ever complained of dyspnea or had these x-ray findings, and only 2 of them complained of a cough.

Minnesota Med., 40:141-151,1957.

Anticoagulant Therapy in Cardiac Infarction

Anticoagulant therapy with ethyl biscoumacetate greatly reduced the incidence of thrombo-embolic complications and the mortality rate in a series of 102 cases of cardiac infarction.

Prolonged treatment with intramuscular heparin was without notable effect in 62 cases.

In view of the large number of deaths occurring soon after an episode of cardiac infarction, large doses of heparin should be given for at least 24 hours, in addition to oral anticoagulants.

Manson, D. I., et al., *Brit. M. J.*, 4957:6-8,1956.

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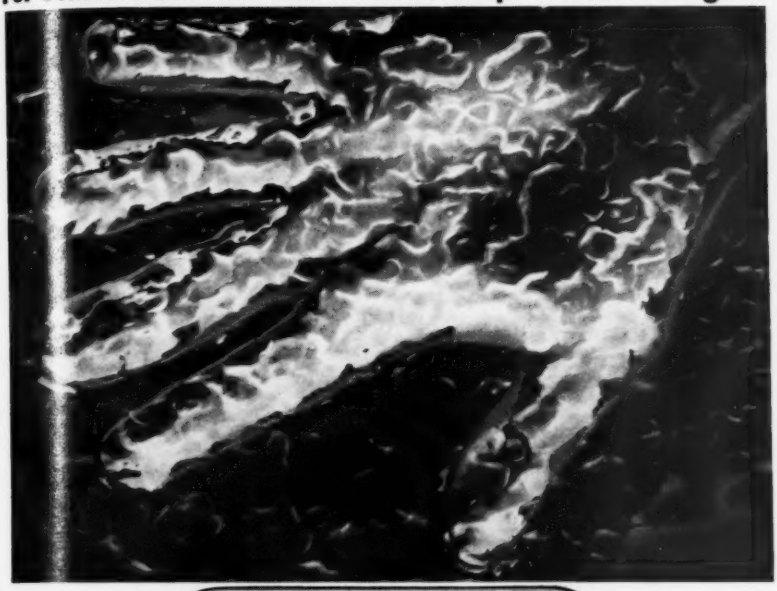

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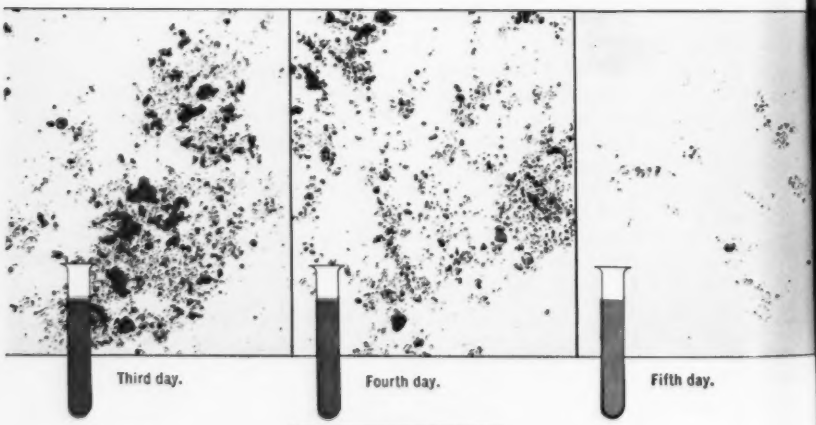
1. McGowan, J. M.: Clinical Significance of Changes in Common Duct Bile Resulting from a New Synthetic Choleretic, Surg., Gynec. & Obst. *103*:163 (Aug.) 1956.



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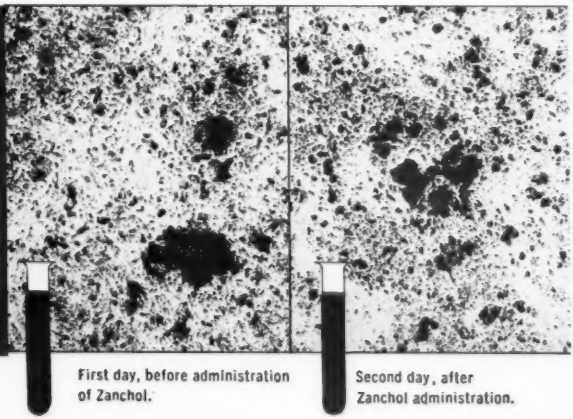
photomicrographs[1] showing daily changes in sediment from centrifuged bile taken from T-tube drainage in a post-cholecystectomized patient.



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Problems of Obesity in Anesthesia

Procedures that may enable the surgeon or anesthetist to control respiration difficulties that are so often encountered in obese patients

HERMAN SCHWARTZ, M.D., *New York, New York*

During general anesthesia, difficulty with the upper airway is very common. The tongue and the oropharyngeal tissues frequently cause obstruction in very light anesthesia, and it is difficult to hold the chin forward. Adequate spraying of the pharynx with a suitable local anesthetic solution (cocaine 4%, Pontocaine 2%) will help ensure tolerance of an airway during light anesthesia to relieve the obstruction.

Even in the supine position the respiratory exchange of the obese patient frequently is inadequate during general anesthesia. The diaphragm cannot descend fully against the weight of the abdominal wall and the abdominal contents, necessitating artificial assistance of the patient's inspiratory efforts. If the mask fit is poor or an unobstructed airway difficult to maintain manually, endotracheal intubation is indicated. The Trendelenburg position should be avoided when possible. Even with an endotracheal tube in place, it is difficult to inflate a very obese individual in this position unless very high pressures are exerted.

For an operation in the prone position the patient should be so placed that the chest and abdomen are free from contact with the table. One may place a roll of hard rubber, or of rolled sheets, 3 feet long and 8 inches wide beneath the patient from clavicle to ilium on each side. En-

dotracheal intubation is always advisable in the obese patient who is given general anesthesia in the prone position.

More anesthetic is needed for anesthesia in the obese. This should be considered in the choice of anesthetic. The induction period and recovery period will be prolonged. Twice as often postoperative vascular complications (thrombophlebitis and embolism) occur in the obese.

Since more drug is needed to reach surgical anesthesia and greater relaxation is mandatory in abdominal procedures in these patients, and since faster recovery and movement are necessary, the use of fast-acting inhalation agents, usually in conjunction with muscle relaxant drugs, seems indicated. Ether is a poor choice. Thiopental is deposited in fat when equilibrium is established between blood and fat. If used in long cases where large intermittent doses would be necessary in the obese, a large fat reservoir of drug would be established. Because of the slow metabolism of the drug (10 to 15% an hour) recovery is slow.

During regional anesthesia, the problem in the obese is that of obtaining proper landmarks and then inserting a needle through thick, movable adipose tissue. For extraperitoneal lower abdominal procedures, such as inguinal hernia or surgery on the lower extremities, spinal anesthesia seems preferable to general. The tension and restlessness prominent in the obese can then best be treated by supplementation with subanesthetic doses of barbiturate and/or mepheridine.

New York State J. Med., 55:3277-3281,1956.

Effects of Effort on the Diseased Heart

Many patients with heart disease may safely return to work; circumstances under which causality of trauma to heart disease may exist are listed

SAMUEL F. ARONSON, M.D., *Seattle, Washington*

A committee appointed by the Washington Heart Association to consider the causal relationship between trauma or strain and heart disease found that a majority of persons with heart disease can work safely if:

1. Medical followup is adequate,
2. Individual work capacity is determined at proper intervals,
3. The job is one well within the limits of the individual, and
4. The patient receives assurances necessary to allay those anxieties which so frequently accompany heart disease.

Physician reluctance to advise return to work arises in part from the knowledge that occasionally a person with heart disease dies while at work. Such an event may occur in the natural course of heart disease. Another deterrent is inability to obtain employment.

Few cardiologists believe that effort or strain—even excessive effort—can damage a normal heart; but intense strain may aggravate preexisting heart disease.

Coronary artery disease is responsible for the majority of cases in which effect of effort on the heart is an important consideration. Atherosclerosis is an insidious, progressive disease entity. The most likely primary lesion is a deposition of lipids, or cholesterol crystals, or both, in the intima. An erratic and slowly

continuing process of fibrosis, necrosis, calcification and vascularization encroaches on the lumina, lessening the supply of oxygenated blood to the myocardium. Early in this disease process, the cardiac reserve is such that ordinary effort does not cause any serious symptoms, though it is possible for effort to so increase the work of the heart that oxygen lack causes angina. As the atherosclerosis proceeds, less effort is required to reproduce anginal attacks. When far advanced, or when strain is prolonged, the resultant hypoxia may cause necrosis of myocardial fibers, with repeated attacks resulting in many disseminated areas of myocardial fibrosis and coronary failure.

When the oxygen want of the myocardium becomes extreme, a large area of the myocardium may be destroyed and clinical signs of infarction may appear, without coronary occlusion. Some of the more frequent precipitating factors are hemorrhage, shock, tachycardia and exertion. At any stage of the process, sudden increase in ischemia may result in fatal arrhythmia.

The most common cause of myocardial infarction is coronary thrombosis, probably as a natural sequence of coronary atherosclerosis. As such it seldom, if ever, is affected by strain, effort, exposure, or emotional disturbance. Thus, with coronary insufficiency, effort may play a role in precipitating infarction; but when acute myorcardial infarction is the result of coronary thrombosis, effort usually is not involved.

Causality of trauma to heart disease may exist under the following circumstances:

1. Sudden death from acute coronary disease in which symptoms develop during the course of, or immediately following, exertion or strain that is *both excessive and unusual* for the individual,

2. Coronary occlusion with myocardial infarction when the first symptoms or signs occur during or immediately following exertion or strain,

3. Acute coronary insufficiency when the symptoms or signs appear for the first time during or immediately following an exertion or strain,

4. Acute pulmonary edema or heart failure first occurring during or immediately following an exertion or strain,

5. Contusion of the heart when symptoms or signs occur within a *reasonable* time after non-penetrating injuries to the chest, determined in each case according to natural history of the disease,

6. Serious cardiac arrhythmias occurring during or immediately after chest injuries or exertions. The disability should be considered to exist only so long as there are symptoms or signs directly attributable to the arrhythmia,

7. Rupture of a heart valve when clear-out signs and symptoms occur during or immediately after exertion, or after non-penetrating injury to the chest.

Northwest Med., 55:54-55,1956.

Toxic Effects of Therapeutic Agents Upon the Blood-Making Organs

Changes in blood-forming organs or in circulating blood may be due to the toxic effects of therapeutic agents

PAUL REZNIKOFF, M.D., and MARILYN WELLS,
New York, New York

The formed elements of the blood originate, under ordinary conditions, in the bone marrow, with the exception of the lymphocytes and monocytes. In the normal individual the number of cells destroyed equals those produced, so that the values in the peripheral blood stream are kept within a normal range. If, however, an extraneous agent interferes with the formation, maturation, or delivery of any of the formed elements by injuring the bone marrow, or this substance destroys the cells in the circulation, then changes appear in the blood-forming organs and in the blood, leading often to serious disorders.

Excessive production of the blood elements is not, as a rule, seen in toxic actions on the blood-forming system, though in some cases the late result of the disease shows such a disorder.

Drugs may convert hemoglobin to methemoglobin or sulfhemoglobin, producing a type of hemoglobin that can no longer carry oxygen and thus interfere with the respiration of tissues.

TRIAL AND ERROR

It is usually impossible to predict which patient will react unfavorably

to medication. Some patients may show the same abnormality every time a particular drug is given. In the case of one agent, there were no untoward effects until a specific dose was reached in susceptible individuals. In some instances of depression of the blood-forming organs, the use of a medication such as a sulfonamide, that may itself be a depressor of the bone marrow, may bring about recovery.

The physician must consider the entire patient, rather than concentrate on the apparent cause of a disability. A patient who was taking one of the depressing drugs developed anemia. Her history showed that she menstruated profusely and that when this condition was corrected her anemia was cured. Another patient, given sulfonamides for a fever of unknown origin, showed evidences of hemolytic anemia and the drug was blamed. The hemolysis continued after the medication was stopped, and post-mortem examination revealed Hodgkin's disease, which had probably caused the hemolytic anemia. One patient stated that she suffered chilly sensations and fever during each menstrual period, but forgot to mention that she took aminopyrine for her menstrual distress, which, it was later learned, caused recurrent attacks of agranulocytosis. A thorough history, a complete physical examination, and adequate laboratory studies are essential in every case.

There is no certain way of preventing an attack of bone marrow depression by following the blood counts at frequent intervals, although this is of some value. The blood count may be normal and the attack may occur later that very day. This is true of the so-called idiosyncratic drugs. With agents that are directly toxic to almost all individuals, the blood picture often shows a more gradual decline.

Finally, some patients are sensitive to drugs that are harmless to most people, and this must be remembered especially when new agents are used.

RULES

The most important rules in drug therapy are to administer therapeutic agents only when actually indicated, and to prescribe the least toxic remedy possible in each case. There is no known way of telling by animal or clinical test whether a patient will show toxic effects when given a particular medication. The number of accidents due to most drugs is very small when one considers the number of people receiving medication.

Trans. New York Acad. Sciences, 18:233-242,1956.

N-Mustard Preferred to X-ray Treatment in Bronchial Cancer

Dr. Henry K. Schoch, of the University of Michigan, states that nitrogen mustard is the only chemotherapeutic substance that has proved effective in reducing the severity of inoperable bronchial cancer. Advantages over high-voltage x-ray are: no exposure to radiation, and short hospital stay. Use of the present larger doses of nitrogen mustard has resulted in improvement in 65 to 75% of the patients treated, and 35 to 55% showed objective evidence of improvement.

Scope Weekly, 2:1-2,1957.

Kutapressin in Rhus Dermatitis

New Parenteral Treatment for Poison Ivy

Unique Liver Derivative for Rapid Relief in the Poison Ivy, Poison Sumac and Poison Oak Regimen

Well known for its effectiveness in treatment of acne, urticaria and other skin disorders, KUTAPRESSIN* was found to be of great value in treatment of the common types of rhus dermatitis such as poison ivy, poison sumac and poison oak.

The poison ivy reaction is characterized by severe itching, pain and exudation. Various local applications, antipruritic and antihistaminic drugs, ACTH and Cortisone have been used previously in an attempt to control the symptoms. In many instances, however, when only the symptoms were being treated, there were recurrences of the disorder as soon as treatment was discontinued and in some, sensitivity to the drug developed.

Clinicians employing KUTAPRESSIN in treatment of ivy dermatitis found—after a single injection—vesicles and bullae were rapidly ameliorated and that itching and pain subsided. One or two additional injections resulted, in most cases, in a complete clearance of symptoms with no recurrences.

It is thought that KUTAPRESSIN acts by causing mild vasoconstriction of the dilated terminal vessels thus improving integrity and reducing permeability of these blood vessels.

Kozelka and Marshall, reporting in the May, 1956 issue of *Clinical Medicine*, state: "We believe the best current therapeusis for the adequate treatment of poison ivy dermatitis is with daily injections of Kutapressin."

KUTAPRESSIN may be given intramuscularly or subcutaneously. The usual dose is 2 cc. daily until maximum response is obtained. Some clinicians have reported that larger dosage (up to 5 cc.) gives more rapid recovery.

KUTAPRESSIN is supplied in 2 cc. ampuls, 10 cc. and 20 cc. multiple dose vials. KREMERS-URBAN COMPANY, Milwaukee 1, Wisconsin. Literature is available on your request.

*Derivative of liver which acts selectively on arterioles and capillaries without raising systemic blood pressure.

Benign Ascites

Presentation of case histories of two patients who developed benign transient ascites, with etiologic observations

JOHN W. TODD, M.D., *Surrey, England*

Most cases of ascites are due to cardiac failure, cirrhosis of the liver, or malignant disease involving the peritoneum or obstructing the portal vein. Other causes are states associated with depletion of the blood proteins, such as the nephrotic syndrome and starvation, grave anemia, tuberculous peritonitis, the syndrome of "polyserositis", and ruptured ovarian cyst. There is no record of ascites appearing in otherwise apparently healthy patients, and later clearing up completely.

TWO CASES

A married woman, 22 years of age, for 2 weeks had had increasing enlargement of the abdomen with no other symptoms, apart from some effort dyspnea and nausea. Twelve pints of yellow fluid was drained off. There was irregular temperature up to 100° for the first week only.

After the paracentesis she felt perfectly fit, without sign of reaccumulation of fluid. A month later her sedimentation rate was 20 mm. after 1 hour (Westergren), and 3 months later it was 8 mm. after 1 hour. Her hemoglobin was 85%. When last seen she had remained in excellent health.

A 22-year-old unmarried woman for 6 weeks had intermittent upper abdominal pain for no apparent reason, with some nausea and anorexia. In the same period she had noticed

abdominal enlargement. There was obvious ascites; otherwise nothing of importance was found. Five pints of colorless fluid was withdrawn. She was afebrile except for temperature of 99° twice, and 100° once.

After the paracentesis she seemed well, there was no accumulation of fluid, the pain disappeared and did not return. When last seen she said she had remained well.

Both young women developed transient ascites which did not recur. They differed mainly in the composition of the ascitic fluid. In Case 1 it contained 2,200 mg. of protein per 100 ml., and 100 white cells and 2,000 red cells per c.mm.; in Case 2 it contained 30 mg. of protein per 100 ml., and no cells. Case 1 also had moderate fever for a week and a sedimentation rate of 30 mm. after 1 hour (Westergren); Case 2 had hardly any fever and a sedimentation rate of 5 mm. after 1 hour.

CAUSATION UNCERTAIN

The cause of the ascites is a matter of speculation. If the differences between the two cases represented a difference in etiology (which is by no means certain), the picture in the first case suggests that some inflammatory process may have been responsible. The ascitic fluid in the second case, on the other hand, had the appearance and composition of a transudate. A possible cause of a temporary peritoneal transudate might be thrombosis of the portal vein or one of its large tributaries.

Venous thromboses are well known to occur in the axillary vein or the superior vena cava of apparently healthy people, and are responsible for temporary edema of an arm or of the upper part of the body. It seems reasonable to suppose that similar thromboses might occur in the portal vein or its tributaries and cause no more than transient ascites.

The only other recognized cause of ascites which might possibly produce only transient ascites appears to be cirrhosis of the liver (which does not always run a progressive course and is not always accompanied by other clinical and biochemical evidence of liver disease). This seems a less likely explanation than portal vein thrombosis.

There is no reference in the literature to examples of benign ascites similar to these.

Brit. M. J., 4961:274-275,1956.

Wet Compress in Pruritus Ani

Anal pruritus is one of the most refractory dermatoses. Attempts to obtain symptomatic relief have resulted in overuse of sensitizing anesthetic drugs. For acute excoriative dermatitis, primary, or secondary to drug sensitization, empiric treatment is the most effective. Aluminum acetate with colloidal oatmeal* is a soothing astringent, emollient and demulcent as cold wet compresses or sitz baths, that will restore skin physiology and bring about gradual resolution.

In a series of 114 patients with acute excoriative dermatitis, 92% were effectively resolved in 1 to 3 weeks; 8% were complicated and required supplementary therapy.

*Bur-Veen Wet Dressing Powder, supplied by the Aveeno Corporation, New York.

Ehrlich, R., *Am. J. Proctology*, 7:497-498,1956.

The Community and Rehabilitation of the Hospitalized Psychiatric Patient

The physician is the cornerstone in rehabilitation plans for these patients while they make the adjustments required when they are able to leave the hospital

LUCY D. OZARIN, M.D., *Washington, D. C.*

Half of the patients in mental hospitals have a diagnosis of schizophrenia; 12% have manic-depressive psychoses; 12% have psychoses associated with senility and arteriosclerosis; the remainder are involutional depressions, alcoholism, mental deficiency, and psychoses, with changes in the central nervous system. Patients with functional psychoses have a better prognosis for leaving the hospital than those with organic change in the brain, but even the latter group may improve or have remissions.

The shock therapies and the tranquilizing drugs have proved effective in abating the acute symptoms of psychoses. A wide range of methods have helped many psychotic patients to make the adjustments required for living in a home community.

In the hospital, occupational, industrial, recreational, and other therapies simulate situations the patient will encounter after he leaves the hospital. A major step for many patients is transfer from a locked to an open ward. Many patients cannot tolerate the abrupt transition from hospital to community life. For these a number of methods bridge the gap.

On "convalescent leave," a pa-

tient is supervised while living in his own home or independently in the community. The time may range from 3 months to a year or more.

Local public health facilities may assist the physician in private practice, who exchanges information with the mental hospital.

"Family care" is the placing of mental patients in homes other than their own when they have no suitable home to which they may return. The foster families are carefully selected and supervised The patients are not placed as workers in the homes, but encouraged to take part in family life, including family chores.

"The member-employee program" permits patients' employment in the hospital at a maximum salary of $821 per year plus maintenance, laundry, and medical care. These ex-patients live on the hospital grounds in non-patient quarters. They work in the laundry, maintenance shops, offices, and as elevator operators. A specially selected employee assists and guides them and coordinates their work program.

The day and night hospital method allows patients to live at home or in suitable boarding places, and come to the hospital for a day-long program of shock and other therapy, or permits the patient to remain at his daytime occupation but live in the hospital and receive treatment there the rest of the time.

A halfway house is a home where patients can live for temporary periods while reestablishing themselves in community life.

In sheltered workshops, epileptics and others who have difficulty in competing in the open labor market work a varying number of hours a day at such light jobs as sorting small parts, wood-working, and small parts assembly.

Any such rehabilitation plan requires community understanding and cooperation in order to succeed.

J.A.M.A., 161:940-944,1956.

Novobiocin For Infections Due to Micrococcus Pyogenes

The antibiotic, novobiocin has been shown to be active against a variety of organisms but especially so against the common cocci. Clinical experience wtih novobiocin in micrococcic infection is thus far encouraging. Only further experience will determine to what degree *M. pyogenes* may develop resistance to this antibiotic.

Novobiocin proved effective in the treatment of 5 of 7 patients with micrococcic bacteremia. In the remaining 2 patients, the supervention of allergic dermatitis in one and the development of antibiotic resistance in the other made discontinuance of therapy necessary. Satisfactory clinical response coincided with the use of novobiocin in infections of the skeletal system and soft tissues in 20 of 22 cases. In 13 cases of micrococcic enterocolitis the flora of the stools reverted to normal.

Novobiocin was apparently effective in meningitis, pneumonia, and upon *M. pyogenes*, including postoperative meningitis, pneumonia, and upper respiratory and urinary tract infections. Continued study of the clinical application of this antibiotic appears warranted.

Martin, W. J., et al., *J.A.M.A.*, 162:1150-1153,1956.

The Doctor Builds His Estate

Prepared for the readers of Clinical Medicine by the Research Department of the leading investment banking and brokerage firm of Bache & Co., 36 Wall Street, New York 5, New York

These monthly articles point out one method by which the professional man may overcome the particular handicap imposed upon him by our tax structure, which taxes the bulk of his income at normal income tax rates, as opposed to the capital gains tax avenue open to many business men. One solution to this problem is the systematic investment of a portion of current income each year in securities. Such a program, which should include many different types of investments such as bonds, preferred stock, common shares and shares of mutual funds, will have as its objectives growth of principal together with reasonable income. We again emphasize that even the most complete series of articles of this type cannot take the place of consultation with a representative of a reputable brokerage firm.

One of the biggest obstacles many people place in their own path toward successfully building an estate is their reluctance to buy "odd lots" (an amount of stock less than the established 100 share or 10 share unit of trading) of stocks that cost a large number of dollars per share. A great many investors, particularly small ones, follow the policy of only buying "round lots" of lower priced shares, even though they may be fully convinced that the higher priced shares offer the better value. Adherence to this illogical prejudice has resulted in small investors failing to take advantage of substantial capital gains opportunities over the years.

The most successful of smaller investors, in our experience, have been those who think of their funds avail-

able in terms of number of dollars instead of number of shares. The man who is prepared to buy, say, $3,000 worth of XYZ stock, even if this results in the purchase of an odd lot, is likely to be far more successful than the one who says, "I can't buy XYZ with my $3,000 since it sells for $55 a share."

Just this latter approach, for example, might well have been used by a man with $3,200 to invest in 1952 to justify his reluctance to buy 16 shares of International Business Machines, then selling at about $200. Adjusting for the stock splits since then, and not even including stock dividends, such an investment would now be worth some $15,000.

Another striking example occurred even more recently. Last fall, Bache & Co. published a study discussing the effect of the Suez Canal crisis on the domestic oil producers. One of the securities most enthusiastically recommended in that study was Superior Oil Co. of California, then selling at around $1,100 a share. A purchase of $3,300 worth of Superior stock six months ago would now be worth almost $5,000, since the shares are now trading at over $1,600.

While the past can not always be considered a reliable guide to the future, we know of countless examples of this type of situation. The intelligent investor always remembers that when he buys securities it is not the number of shares he receives that counts but the value he receives with each dollar of his investment. Very often, the greatest value will be found in stocks with high price tags. This month, we will discuss a group of just such securities. These three stocks all have, in our opinion, outstanding growth prospects. Like many issues with this type of promise, of course, the yield is low—and in the case of Superior Oil of California nonexistent — but we believe that the bright outlook far outweighs this factor.

The three issues we recommend are Superior Oil of California, a producer of crude oil which is beginning to reap the benefits of substantial exploration expenditures of recent years; American Home Products, an important producer of ethical drugs, proprietary drugs, food products and household products; and National Lead Co., a leading producer of paints and pigments, the world's largest factor in non-ferrous diecastings and a fabricator of metals, a producer of oil well drilling materials and an important factor in the titanium industry.

NATIONAL LEAD CO.

National Lead Co. has long been regarded as one of the outstanding "blue-chip" stocks. The company is best known for its paint products, marketed under the well-established "Dutch Boy" label. National Lead, however, is much more than just a paint company. The acquisition of Doehler-Jarvis Co. in 1953 made National Lead the world's largest factor in non-ferrous metal diecastings. In addition, the company fabricates metals and produces oil well drilling materials. Together with Allegheny Ludlum Steel, it owns Titanium Metals Corporation of America, one of the leading components of the titanium industry. The 66-year old National Lead Co. operates some 85 plants in 26 states, while foreign plants are located in Europe, Australia, South America, Cuba and the Philippines.

Paints and pigments are, of course,

National Lead Co.			
Price	$129	Capitalization (12/31/56)	
Dividend	$3.25	$7 Preferred stock	2 4,293
Yield	2.5%	$6 Preferred stock	0,185
Where Traded	N.Y.S.E.	Common stock	11,6 8,602
1957 Price Range	$173½-100½		

the "bread and butter" of the company's operations, accounting for about half of sales. Output includes exterior house, interior wall and metal protective paints; linseed, lead mixing and flatting oils; white and red lead; colors; liquid drier; enamels and varnishes. Other important products include battery lead, bearing metals and castings, lead pipe and sheets, solder, linotype and allied printer's metals, and lead oxides. The company basically is the largest producer of materials in which lead and tin are basic ingredients.

It was National Lead's stake in the paint industry which led it into titanium many years ago, when titanium oxide came into use as a pigment in paint. The company's formation of Titanium Metals Corporation of America with Allegheny-Ludlum has given it ownership of half of one of the most highly regarded, fully-integrated titanium operations in this country.

Titanium is a relatively new metal with immense potential due to its excellent corrosion-resistant properties and other useful characteristics. Commercial markets at the moment are limited, although military demand has been high for jet engines and other aircraft parts. National Lead mines ilmenite, a raw material for titanium, from mines in New York State, Florida and Norway. Titanium Metals Corp. produces titanium sponge from this material, at which point Allegheny Ludlum's fabricating knowledge comes into play. T.M.C.A. earned some $11 million in 1956, on sales of $55 million. None of these earnings are reflected in National Lead's income statement, since T.M.C.A. has declared no dividends to its parent companies. T.M.C.A. is engaged in an expansion program costing $25 million, all of which is expected to come from T.M.C.A.'s earnings. This program will expand the company's titanium sponge capacity from 6,000 tons annually to 9,000 tons, and ingot capacity to 11,000 tons annually, with the new capacity expected to be available by the fourth quarter of this year. Additional specialized fabricating facilities are being put into operation. A new plant at Toronto, Ohio, was purchased last year and is being reconstructed with special equipment designed exclusively for rolling and forging titanium metal, the first such facility in the industry.

National Lead has shown an outstanding growth record over the past decade. Sales, for example, have risen from $167.4 million in 1946 to a record $576.3 million in 1956. Earnings have climbed sharply as well, rising from 77¢ a share in 1946 to $5.23 a share in 1956, up from the $4.02 earned in 1955. Earnings rose again in the first quarter of this year to $1.22 from $1.16 in the same period of 1956. Dividend payments have also soared, from $.47 a share in 1946 to $3.25 plus 2% stock in 1956.

Of even more importance to the future growth potential is the fact

that much of the improvement in National's sales last year occurred in the newer product lines, largely developed or improved in the company's research laboratories. Sales of titanium pigments, oil well drilling materials, mixed paints, lead chemicals, zirconium and high temperature refractories all attained record high levels, while gains were made by fabricated metal products, screws and metal fasteners and steel containers. Consumer acceptance of NALFLEX, an acrylic latex interior paint recently added to the Dutch Boy Line, was termed most satisfactory.

The company's substantial plant and equipment spending program was concentrated last year in providing expanded capacity for those products where demand curves continue to outpace production. Thus, additional reserves of baryte ores, used in the manufacture of weighting materials for oil well drilling, were acquired by the company in three states. National Lead plans to spend about $15 million in 1957 and 1958 to further increase titanium dioxide output at the St. Louis plant, with the new capacity expected to be available by July, 1958, to meet continually growing demand for titanium pigments.

National's new fields of activity last year included important progress in the joint project with Republic Steel in winning of metallic iron from its ores to the point where a jointly-owned corporation has been formed to carry on further development work and to undertake the commercialization of the process. National feels the R-N process has the greatest potential in the field of new iron producing capacity, making possible the treatment of a wider range of ores and fuels and the production at a lower cost of a superior raw material for the steel industry. National Lead also acquired a West Coast manufacturer of zinc alloy and aluminum tooling plate for the aircraft and other industries; and developed several new oil well drilling chemicals.

What's more, the company has joined with 9 other firms in forming Industrial Reactor Laboratories, Inc., which is now building the first nuclear reactor and research center owned entirely by private industry at Plainsboro, N. J. The company is also undertaking the operation of the Atomic Energy Commission's uranium processing mill at Monticello, Utah, and now operates in an integrated role in the production of atomic energy materials from ore to fabricated metal through the operation and management of four AEC installations.

Despite the present high price-earnings ratio, we believe the outstanding future growth possibilities, as well as the excellent past record, make the shares of National Lead suitable for building an estate.

SUPERIOR OIL OF CALIFORNIA

The initial reaction of the average investor when first confronted with Superior Oil of California is horror! Each share sells for $1,645 and represents earnings of $11.94 in the most recent fiscal year. What's more, there is no dividend. The horror, however, is the result of an industrial security orientation. Superior Oil is not an industrial, as the term is used in financial circles, and cannot be appraised by standards that apply to such firms. The company has but one activity—

Superior Oil of California			
Price	$1,645	Capitalization (12/31/56)	
12 Mos. Div.	None	Long-Term Debt	$91,8 6,598
Yield	None	Common Stock	4 2,261
1957 Price Range	$1,730-$1,210		
Where Traded	N.Y.S.E.		

the exploration for and production of crude oil and natural gas. In order to measure the true value of such a company, one must look to "cash flow," reserves of oil and gas, exploration history and current exploratory activity.

Before computing net income, oil companies deduct 27½% of their gross for depletion. The net earnings figure as reported, then, can greatly under-estimate the real earning power of an oil company. In addition, an oil company has the choice of deducting its intangible drilling expenses each year from its gross or of capitalizing them and then amortizing them over the producing life of the property. Intangible drilling expenses account for two-thirds of the cost of drilling wells. Since oil firms have a choice as to whether or not they deduct all of their intangible drilling expenses in any one year, the net income figures of different oil companies are not always comparable.

In order to arrive at the real and comparable earnings, non-cash and certain cash charges are added back to net income to compute "cash flow." These charges are depreciation, depletion and deductions for intangible drilling costs, as well as some other charges which are handled in different ways by different companies. In its fiscal 1956 year, the 12 months ended August 31, 1956, Superior reported a cash flow of about $130 per share. For the fiscal 1957 year which ends August 31, 1957, cash flow of $170 per share should be reported. Most of this increase will come from larger gas production under a contract signed last year. On the basis of this cash flow figure, the shares of Superior are not now selling at unreasonable levels.

The increase in per share earnings expected in 1957 is made more substantial, of course, by the fact that there are only 422,264 common shares outstanding. This is most important, since any reasonably large discovery of oil and gas materially affects the asset value and, therefore, the market price of each share. The reasoning behind this cause and effect relationship is as follows:

A given amount of oil is discovered; each bbl. of the oil sells for a known price and it will take a given number of years to produce the reserves in the field. The total number of bbls. discovered is multiplied by the price to arrive at the gross value of the discovery. This gross value is then reduced to a net cash value by deducting the cost of production and taxes. The present value of the total net cash income is then arrived at by using an 8% discount rate and considering the years necessary to produce the total income. This present value divided by the number of shares outstanding, represents the increased asset value of each share. However, the added value factor is important only if the present price of the stock does not already reflect the reasonable possibilities of new

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discoveries. On the basis of both present reserves of crude oil and natural gas and the present cash flow per share, Superior Oil of California can be valued at about $1,550. The investor is then paying less than $100 per share to see if new discoveries will be made.

The past history of Superior Oil of California indicates that the company has an unusual ability to find oil. The increase in earnings this year, as well as the further gains likely in future years, represents a return on the substantial exploration expenditures of recent years, which have resulted in greatly increased results. As to the future, the company's large position in the very promising off-shore Louisiana area, in the Paradox Basin of Southeastern Utah and in Canada through its 51.7% interest in Canadian Superior Oil of California, Ltd., offer excellent opportunities for new discoveries.

Of immediate interest is Superior Oil of California's 7,500 acre block in Lake Maracaibo, Venezuela. The Lake is the hottest new oil area in the world. With 50,000 bbls. of oil per acre a reasonable expectation when oil is found there, the possibility for significant price appreciation for the stock of Superior is evident. Drilling on this Maracaibo block is now getting under way.

With the present price of Superior not significantly discounting future discoveries and the past history of exploration and present inventory of unexplored land auguring well for new discoveries, the stock of Superior Oil of California is recommended for potential capital gains.

AMERICAN HOME PRODUCTS

Most doctors are probably already familiar with some divisions of this diversified company which produces ethical drugs, packaged drugs, food products, cosmetics and household products. The company is an important producer of ethical pharmaceuticals under the names Wyeth, Ives-Cameron, Ayerst and Fort Dodge, and derived 47% of its sales last year from these activities.

The ethical drug division manufactures such products as Bicillin, Ansolysen, Equanil, Premarin, Mysoline, Amphojel and many others. New products introduced by Ayerst in 1956 included Thiosulfil-A, Cytoferin and Clusivol Syrup, while Synlagos was brought out by Ives-Cameron and sales gains were registered by Fort Dodge's Nolvasan and Soxipent. The sales volume of Wyeth Laboratories showed a substantial gain during the year, with much of the growth attributable to the success scored by Equanil in the field of tranquilizer drugs. Other Wyeth products contributing to the gain included Phenergan Injection, Ansolysen and Pen-Vee-Oral.

Other products also play important parts in the successful growth of American Home Products. The company's proprietary packaged drugs and cosmetics accounted for 17% of gross last year. This line includes Anacin, the most important from the standpoint of dollar and unit sales, Preparation H, InfraRub, Heet Liniment, BiSoDol mints, Kolynos toothpaste, Kriptin, Outgro, Neet Hair Remover and Petro-Syllium. This division, the Whitehall Pharmacal Company, is one of the country's largest advertisers.

American Home Products Food Division also reached a record sales volume last year, reflecting the successful introduction of new products as well as widened demand for most

American Home Products

Price	$151	Capitalization (12/31/56)	
Indicated Dividend	$5	Long-Term Debt	$9,4[illegible]6,000
Yield	3.3%	Common stock	3,8[illegible]0,785
1957 Price Range	$154¾-118½		
Where Traded	N.Y.S.E.		

established lines. Sales accounted for 18% of the company's gross. Particularly good progress was made in widening the acceptance of Chef Boy-Ar-Dee Italian style foods, and the company began distribution of these products in Ontario, Canada. This division also makes the G. Washington products and other foods.

The company's Household Products Division accounted for 18% of sales last year. This division turns out a wide variety of waxes and polishes, insecticides, cleaners, germicides, disinfectants and deoderants and home repair maintenance items. Included in this wide list are Old English waxes, Black Flag insect spray, Sani-Flush, Aero Shave, Griffin Shoe Polish and Ridz dog repellant.

American Home Products' long list of well-known, successful products combined with generally good business conditions and successful promotional efforts enabled it to score a sharp sales increase of 26% last year, with total gross rising to $317.3 million, compared to $252.3 million the year before. Earnings rose even more sharply, amounting to $8.14 a share, as against $5.34 a share in 1955.

The sharp uptrend in earnings has continued on into 1957. In the first quarter, American Home netted $2.46 a share, as against $1.86 in the comparable three months a year earlier. Sales amounted to more than $95 million, compared to $80.5 million in last year's first quarter. The company has an outstanding growth record for the past decade, since sales in 1947 amounted to only $139 million and earnings to $1.72 a share.

Regular and extra dividends came to $5 during 1956 compared to $3.30 in 1955. The company follows the somewhat unusual policy of paying dividends each month, and has paid uninterrupted monthly dividends since 1926, the year of the company's incorporation. At the regular monthly meeting in November, the Board of Directors increased the monthly rate to 35¢ per share effective with the January, 1957 payment.

In order to meet the demands of its growing markets, American Home Products has been engaged in a comprehensive construction program in the past year. This program has included both plant and laboratory facilities necessary to insure continuing operating efficiency and adequate production capacity to maintain the company's competitive position. Expenditures for plant expansion and improvements last year came to $7 million. The expansion program added facilities at Chicago, Cranford, N. J., West Chester, Pa., and Marietta, Pa., in the U. S., as well as at Havant, England, Sao Paulo, Brazil, Toronto, Canada, and Caracas, Venezuela.

The shares of American Home Products have appeal, we believe, for high quality and sustained growth. A stock split is a possibility in the months ahead, and further dividend improvement may be anticipated.

Matromycin Intravenous *(Pfizer)*

Oleandomycin phosphate. *Indications:* Severe resistant infections, especially those caused by resistant staphylococci and streptococci. *Administration:* Intravenously. *Supplied:* Sterile vials containing 500 mg. of oleandomycin activity.

Saff *(Abbott)*

Contains oil pressed from the seeds of the safflower. Saff contains 46% linoleic acid, and essential unsaturated fatty acid. It has less than 5% saturated fatty acid and less than 13% oleic acid, a non-essential unsaturated fatty acid. It has been demonstrated that while most fats raise the blood cholesterol level, highly unsaturated oils which are sources of essential fatty acids cause a decrease in blood cholesterol. Medical evidence indicates that high blood cholesterol levels are associated with atherosclerosis. *Indications:* Atherosclerosis. *Dosage:* As directed by the physician. *Supplied:* One pint bottles.

Orinase *(Upjohn)*

Orally effective hypoglycemic agent. *Indications:* For the management of selected cases of diabetes mellitus. *Dosage:* As directed by the physician. *Supplied:* Bottles of 50 scored, white 0.5 gm. tablets..

Pathibamate *(Lederle)*

Each tablet contains 25 mg. of Pathilon tridihexethyl iodide and 400 mg. of meprobamate. Disorders of the digestive tract and the associated emotional factors can be controlled without danger of barbiturate hangover or habituation. *Indications:* Disorders of the gastrointestinal tract along with the associated anxiety and tension; duodenal ulcers, gastric ulcer, intestinal colic, spastic and irritable colon, ileitis, esophageal spasm, anxiety neurosis with gastrointestinal symptoms, and gastric hypermotility. *Dosage:* One tablet 3 times daily at mealtime. Two tablets at bedtime. *Supplied:* Bottles of 100 and 1,000 pale yellow, scored tablets.

Floropryl *(Merck Sharp & Dohme)*

Floropryl (Di-isopropyl Fluorophosphate) exerts its action by irreversibly inhibiting cholinesterase, thereby allowing acetylcholine to stimulate the smooth muscles of the iris and ciliary body. *Indications:* Certain types of glaucoma and of strabismus (squint) and concomitant convergent strabismus (cross-eyes). For mild cases of the latter condition in small children, use of this ointment has obviated the need for glasses in many instances. *Administration:* Use locally for installation into the conjunctival sac.

Arcofac *(Armour)*

Each tablespoonful contains as an emulsion 6.0 gm. of essential fatty acids (measured as linoleic) derived from safflower oil and 0.6 mg. of pyridoxine hydrochloride (vitamin B^6). Researchers have reported that Arcofac can start reduction of the cholesterol level within 48 hours. Significant lowering may require two to three weeks. A tablespoon or two of this preparation daily prevents the cholesterol level from rising. Care must be taken to avoid excess calories, but the patient may eat a normal diet. *Indications:* Atherosclerosis, heart conditions, diabetes and other illnesses. *Dosage:* Usual adult dose is one tablespoonful daily. *Supplied:* 12 ounce bottles, 12 bottles to a case.

Albustix *(Ames)*

Colorimetric strip test for proteinuria. The presence of albumin in urine is indicated by an immediate color reaction, the intensity of this color reaction in proportion to the amount of protein present. A color scale is provided on the bottle for easy indentification of results and uniform recording. *Supplied:* Bottles of 120 reagent strips.

Pyribenzamine Lontabs *(Ciba)*

Prompt action through release of the Pyribenzamine in the tablet coating is supplemented by prolonged action, up to twelve hours, through a slow consistent release of Pyribenzamine in the tablet core. *Indications:* For the patient requiring continuous therapy for a variety of allergic conditions. *Dosage:* The average dose is one tablet on arising and one tablet at bedtime. *Supplied:* Bottles of 100 and 1,000 tablets.

Achromycin Ophthalmic Oi Suspension 1% *(I ederle)*

Achromycin tetracycline hyd ochloride 1% in a sterile oil suspen ion for ophthalmic use. Oil suspens on has proved superior to ointment in that it is easier to handle, causes ess visual disturbance immediately after instillation, diffuses into the conjunctival sac more rapidly and remains in the sac over a prolonged period. *Indications:* For topical treatment of ocular infections caused by tetracycline-sensitive bacteria, rickettsia and some virus. *Administered:* In most bacterial infections, one or two drops squeezed into the affected eye, or both eyes, two or four times daily. In severe infections, additional dosage is necessary. Dosage should continue from 48 hours to one or two months, depending on the severity of infection. *Supplied:* In blue and yellow plastic dropper bottles, each containing 4 cc. of suspension.

Harmonyl *(Abbott)*

Wide-range tranquilizer and antihypertensive. This new rauwolfia derivative is reported to exhibit significantly fewer and milder side effects. *Indications:* Mental disturbances and hypertension. Use with caution in peptic ulcer, surgical cases, epilepsy, or electroshock therapy. *Dosage:* For mild anxiety cases, as little as 0.1 mg. daily, depending upon the patient's needs. Institutionalized psychiatric cases usually require not less than 2 to 3 mg. daily. Mild essential hypertension cases are usually maintained on dosage of 0.25 mg. daily. *Supplied:* 0.1 mg. tablets in bottles of 100 and 500. 0.25 mg. grooved tablets in bottles of 100, 500 and 1,000. 1.0 mg. grooved tablets in bottles of 50 and 500.

Supportive Treatment Best in Barbiturate Poisoning

Supportive therapy, advocated by all, is outlined as follows:

1. A patent airway must be maintained. Endotracheal intubation or tracheostomy is often necessary to prevent soft-tissue obstruction and to remove secretions. During coma oxygen is required.

2. Intravenous infusions of dextrose in saline and water. Plasma expanders may be useful, and vasopressor drugs to maintain adequate blood pressure in some cases.

3. Lavage with a large-bore tube is essential. Great care must be taken to prevent aspiration of gastric contents into the lungs.

4. The use of antibiotics and an indwelling catheter, and maintenance of good eye and oral hygiene are important adjuncts.

Those who advocate the additional use of stimulant drugs believe that nikethamide, amphetamine, Metrazol, caffeine and picrotoxin help these patients. Among the dangers of these drugs are convulsions, vomiting with aspiration of gastric contents, and cardiac arrhythmias. Convulsions occur in 20% of the patients treated with picrotoxin. The convulsions are dangerous in themselves and may cause irreparable damage to the brain during anoxia.

Abnormalities of cardiac rhythm are prone to occur in patients with barbiturate poisoning. Picrotoxin, amphetamine and caffeine appear to increase the risk of a fatal arrhythmia.

On the basis of available evidence, supportive therapy alone is the method of choice in treating barbiturate poisoning.

Editorial, *J. Tennessee M. A.*, 49:397-398,1956.

Prednisone in the Management of Idiopathic Hereditary Lymphedema (Milroy's Disease)

A case of idiopathic hereditary lymphedema occurred in a girl 11 years of age, for the fourth consecutive generation. Both lower extremities were involved to the knee, the clinical course was recurrent, and there were self-limited attacks of fever, local pain, redness, and swelling. Prednisone gave dramatically beneficial results. The edema receded 80%, and the "attacks" failed to recur. After one month of fairly intensive therapy, a maintenance dosage of 5 mg. daily was established, and the remission has persisted under this regimen for 14 months. It is recommended that prednisone or prednisolone be given an extensive trial in other cases of this disease.

Panos, T. C., *J.A.M.A.*, 161:1475-1477,1956.

Prantal in Long-Term Anticholinergic Therapy

Twenty-six patients with gastric or duodenal ulcer (14 clinic and 12 private) were selected for a comparative study of the effects of three of the drugs currently used in anticholinergic therapy of peptic ulcer. From this series, 21 patients had duodenal ulcer proved by x-ray, 5 had gastric ulcer.

All 26 patients had moderate to severe pain at the start of treatment; six vomited persistently although there was no evidence of pyloric obstruction.

Initially, all 26 were treated with propantheline bromide 15 mg. four times daily. After two weeks, ten patients had to discontinue this drug. While pain was relieved, dryness of the mouth, blurring of vision, and difficulty in urination prevented its continued use. The same side effects occurred to a moderate degree in the remaining 16.

Eventually, the 26 patients were placed on a dosage of one or two (according to severity of pain) 2.5 mg. methscopolamine bromide tablets every six hours. Treatment at both dosages caused dryness of mouth, blurred vision, and difficulty in urination.

The third drug used by all 26 was diphemanil methylsulfate (Prantal). The usual dosage was one 100 mg. tablet four times daily. With severe pain, a dosage of 200 mg. four times daily was used for one or two weeks, or until the severe pain was relieved. Thereafter, the patients were maintained at 100 mg. four times daily until freedom from pain was achieved; usually in about two months.

Prantal relieved pain completely in 22 patients, partially in two, and aggravated pain in two patients. No side effects were reported by 24 patients. Dryness of the mouth occurred in two patients, and this caused discontinuation of therapy in one.

Riese, J. A., *Am. J. Digest. Dis.*, 1:31-33, 1956.

Amino-Acid Imbalance and Supplementation

The fortification of food with specific nutritive substances was first made a matter of public policy when vitamin D was added to evaporated and fluid milk. This procedure has been largely responsible for the eradication of rickets in the United States. The addition of iodine to table salt was an important prophylactic measure against goiter. Vitamin A is usually added to butter substitutes. An effort was made to improve the nutritive value of wheat flour by restoring the thiamine, riboflavin, nicotinamide, and iron lost during milling. As a result, "enriched" flour and bread are eaten today by a large proportion of the public.

The idea of fortifying food has been extended to the protein content, as some proteins are deficient in one or more of the 23 constituent amino acids; *e.g.*, the proposed fortification of the protein gliadin in wheat flour by the addition of lysine. However, amino acid fortification is much more complex than vitamin fortification.

The evidence at hand strongly suggests that, because of the dangers of producing amino-acid imbalances, the addition of lysine, or methionine, or any other single amino acid, should not be made to foods for infants (or adults) until there is indisputable evidence of the value, as well as the safety, of such supplementation.

Editorial, *J.A.M.A.*, 161:884-885,1956.

Proteinuria and Hypothyroidism

Although the high protein content of the transudates of myxedema, and the impaired renal function common in this disorder, might lead to the assumption that proteinuria would be frequently encountered, our data does not confirm this hypothesis.

Of the fifteen cases of proved hypothyroidism reviewed, only three showed persistent proteinuria. Each of these had associated significant vascular disease, and none showed unequivocal clearing of the albuminuria on thyroid therapy.

Ross, T. . . et al., *New England J. Med.*, 255:519-520,195

Serum Sickness Reaction to Meprobamate

A case of a serum sickness type of reaction after the prolonged use of meprobamate occurred. If meprobamate is indicated, its use should be restricted to those who have no history of sensitivity to any other medication.

Carmichael, L. P., *J. Florida M. A.*, 43:8,779,1957.

Gout—A Neglected Entity

Gout is not a rare disorder, but one commonly overlooked. The history and initial examination usually establish the diagnosis. Only one laboratory determination, blood uric acid, is of value. Colchicine will not relieve the pain of other forms of acute arthritis, however the response in gout is dramatic and diagnostic. Usually complete relief is obtained in 1 to 2 days. Tinc. camphorated opium is frequently taken with the colchicine to control the diarrhea.

Grossman, L. A., *J. Tennessee M. A.*, 49:8,1956.

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With equal rapidity, URISED's antibacterial agents — methenamine, salol, methylene blue and benzoic acid—traverse the entire urinary tract to hold bacterial growth at a minimum, reduce bacterial and pus-cell content, encourage healing of mucosal surfaces.

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Gas Gangrene Risks

The presence of gas-forming organisms is not the direct cause for the occurrence of gas gangrene in wounds. This has been proven repeatedly, since it is common to find such organisms in clinically healthy wounds. Simple facts are easily forgotten. It will be a calamity if younger surgeons have to learn all over again the lessons of the last devastating war.

The relation of pathogenic anerobes to gas gangrene is straight-forward; gas gangrene develops only in dead tissue. Hence the brilliant results when the teaching of Professor Trueta on correct wound excision is followed; war wounds remained clean after proper excision, even though wounds were teeming with these organisms.

Our theatres and tools should always be as germ-free as possible, but even more important is the practice of correct surgical principles.

Louis, F., *Brit. M. J.*, 4994:713, 1956.

Prefrontal Leukotomy

A series of 103 patients were asked to state their views regarding the value to them of a leukotomy-type operation. From this group, 66 patients were glad the operation had been performed, 11 regretted it and 3 thought it had been a great mistake. The remaining 23 were neither glad nor sorry that they had the operation.

The views of 93 relatives were obtained: 72 thought the patient was improved, 11 thought the patient was worse, and 10 thought it had made little difference.

Unwelcome changes were reported by the patients in 43 cases, and by the relatives in 51 cases.

In the present series, a good result was reported much oftener with a standard operation than with a modified one. The incidence of bad effects was only slightly higher with the standard operation.

Elithorn, A., et al., *Brit. M. J.*, 4995:739-742, 1956.

Experience With Gastrectomy at a Veterans Hospital

A study was made of the results of gastrectomy in 215 armed forces veterans, 87% of whom were followed for one to five years. Of the 141 patients with *duodenal* ulcer, results were excellent or good in 119, poor in 22. In all 26 patients with *gastric* ulcer, results were excellent or good. The result was poor in one of the eight patients with *marginal* ulcer. Thus, results were excellent or good in 152 (87%) of the 175 living patients who were followed up.

Jordan, Jr., G. L., et al., *J.A.M.A.*, 161:1605-1608, 1956.

Cobalt-60 Teletherapy for the Cancer Patient

Radiation therapy of human cancers is possible because some types of cancer have a greater sensitivity than the normal structures. The status of cobalt-60 therapy or super-voltage radiation of the 2-million-volt range can be thus summarized:

1. There is the possibility of increasing tumor doses because of the better skin tolerance and a slight increase of the tolerance of the deeper structures.

2. There is no specificity of action on tumor cells and, therefore, no fundamental change in the radiosensitivity of tumor cells.

3. The mode of attack always has to be adapted to the natural history of the cancer, as its curability is fundamentally inherent in its biological behavior.

Supervoltage therapy is of no advantage in early accessible cancers treated optimally by low-voltage or medium-voltage x-rays (such as in cancer of the skin and lip) or by intracavitary or interstitial radium therapy (as in early epidermoid carcinoma of the oral cavity and uterine cervix). It does not offer assistance in radioresistant cancers and offers very little in the treatment of widespread cancers, even if they are of the radio-responsive type.

Fletcher, G. H., *J.A.M.A.*, 164:244-248,1957.

Cancer of the Stomach

In some centers, 40% of resections for carcinoma are now *total* gastrectomies. Operative mortality for total gastrectomy is twice that for the *partial* procedure, about 11%, and it may cause serious, permanent troubles. Against *partial* gastrectomy is frequent recurrence in the gastric stump, duodenum, and epigastric nodes.

Total gastrectomy should consist of an *en bloc* dissection of the entire stomach, spleen, tail of the pancreas, omentum, gastrocolic ligament, and portions of the duodenum and esophagus. Operative mortality of this radical procedure is from 15% to 25%.

In the studies of Comfort et al, 32% of patients undergoing gastrectomy survived five years. According to Dockerty, with involvement of the mucosa only, 5 year survivals were 100%; when the tumor had extended to the peritoneum, 44%; and in cases of lymph-node involvement, 15%. From studies of Bruce and Cooper, the 5 year survival rate of *all* patients with gastric cancer appears to be 9%.

Cancer Bull., 8:42-46, 1956.

Advances in Gastric and Duodenal Surgery

The Bilroth I operation (gastroduodenostomy) has been revived and is being employed more in cases of gastric ulcer. Although the "radical" sub-total gastric resection is the most commonly used operation for cancer of the stomach, the total gastrectomy with interposed jejunal loop is now being given wider clinical trial. A new clinical entity, the ulcerogenic islet cell tumor of the pancreas, has been described. Recent investigators have related the postgastrectomy dumping syndrome to the presence of hypertonic solutions in the upper jejunum. A decrease in carbohydrate in the diet has been beneficial in preventing these symptoms.

Glenn, F., & Dineen, P., *New York State J. Med.* 57:1773-1777,1957.

briefs: THERAPEUTIC

An Occupational Agent Causing Reaction to Alcohol

A new agent (N-butyraldoxime) has been found to cause a peculiar reaction to alcohol, similar to, but milder than, the Antabuse-alcohol reaction. The acetaldehyde blood level is elevated by the absorption of N-butyraldoxime, which is further markedly elevated shortly after the ingestion of alcohol and causes this reaction. The effects of exposure to N-butyraldoxime largely disappear in 24 hours. There is apparently no permanent damage done to the body by the new agent. A new "cure for alcoholism" may have been found.

Lewis, W., et al., *Med. Ann. District of Columbia*, 25:485-490,1956.

Riboflavin in Migraine

The essential factor of migraine is the recurrence of headache, often followed by vomiting, often unilateral, usually frontal or occipital. The attacks may be preceded by a diversity of sensory phenomena, such as disturbances of vision and hemiparesthesias.

The treatment consists of a daily total of 30 mg. of riboflavin given orally in three doses of 10 mg., with or after food for a period of six months, followed by 10 mg. once daily indefinitely. If symptoms recur when the patient is having the maintenance dosage, the full dosage is repeated.

No side-effects were noted. The majority of the 100 patients so treated during the last ten years expressed a great improvement in their general health. Protection against attacks is rapidly afforded, and if any attacks occur within the first month they are very mild; often there were no further attacks.

Warn patients against complacency. After some months of freedom from attacks they often consider themselves cured and stop treatment. Attacks may then start again within a few months, usually very mild at first but increasing in severity if the riboflavin is not again resumed. The maintenance dose of 10 mg. daily was sufficient to prevent further attacks in the great majority of patients.

Gordon, L., *Brit. M. J.*, 4991:550-551,1956.

Chlorpromazine

Since chlorpromazine relieves nausea and potentiates the action of analgesic drugs, it is extremely useful in the treatment of patients with advanced and incurable cancer. The drug must be administered carefully and only when there is adequate indication. Patients who are given chlorpromazine should be carefully observed for signs of obstructive jaundice.

The Cancer Bull., 8:47,1956.

Two New Oral Diuretics

This study is a laboratory and clinical evaluation of two new oral diuretics having different modes of action. The first is Diuretic C (U-4191) which inhibits the action of carbonic anhydrase. Preliminary data indicate that it is more potent than acetazoleamide (Diamox). The other diuretic is Meterox (Su-2847), an oral mercurial similar to, and experimentally as potent as, chlormerodrin (Neohydrin).

Diuretic C is effective in controlling heart failure in many patients, but it is less effective than acetazoleamide. When used daily, Diuretic C becomes less effective over longer periods of time, and the side effects are severe and often incapacitating. When Diuretic C was given every other day in doses of 250 mg., along with Meterox, the side effects were minimized.

Meterox was as effective as chlormerodrin when used in somewhat larger doses than chlormerodrin. It was found to be more effective than Diuretic C or acetazoleamide in treating patients with congestive heart failure. Well tolerated, it produced very few severe side effects. The gastrointestinal side effects seen at the onset of therapy decreased in intensity and frequently disappeared completely.

The combination of Diuretic C and Meterox was less effective than acetazoleamide and chlormerodrin, but was adequate for the control of heart failure of most of the patients treated. Side effects were similar with either combination.

Moyer, J., et al., *Antibiotic Med. & Clin. Therapy*, 3:179-192,1956.

Acute Cyanide Poisoning

The efficacy of amyl nitrite or sodium nitrite, or their combination with thiosulfate, in the treatment of cyanide poisoning has been repeatedly confirmed experimentally and clinically.

Two cases of acute poisoning by the inhalation of cyanide are described. The first patient regained consciousness in 40 minutes. In the interval he was treated with inhalations of amyl nitrite and intravenous injections of 0.3 gm. of sodium nitrite and 12.5 gm. of sodium thiosulfate. The second patient remained stuporous for five hours, receiving inhalations of O_2 and CO_2 and of amyl nitrite as well as an intravenous injection of 0.6 gm. sodium thiosulfate. Much improvement followed the intravenous injection of 50 cc. of a 1% solution of methylene blue. No dramatic effects were obtained from alternating injections of sodium nitrite and sodium thiosulfate in this case. Both patients made complete recoveries.

Chen, K. K., et al., *J.A.M.A.*, 162:1154-1155,1956.

Phenobarbitone Poisoning Treated with Bemegride

A case of phenobarbitone poisoning in a child, 14 months of age, is reported. Phenobarbitone had been administered for 36 hours because it had been mistaken for succinylsulphathiazole.

On admission, the child was deeply comatose, but his respiration and circulation were not depressed. He was treated successfully with 2827 mg. of bemegride, mixed with a convenient intravenous transfusion fluid. This was given continuously for 80 hours.

Hurdle, A. D. F., et al., *Lancet*, 1:836-837,1956.

Treatment of Peripheral Vascular Disease with Hydergine

Fifty-eight cases of peripheral vascular disease were studied over periods ranging from three months to more than a year. Included in this group were 33 cases of arteriosclerosis obliterans, five cases of thromboangiitis obliterans (Buerger's), three cases of Raynaud's syndrome, four cases of abdominal aortic occlusion, 11 cases of postphlebitic syndrome with chronic venous insufficiency, one case of frostbite, and one case of embolism in the left popliteal artery.

With few exceptions, treatment consisted of injection of 1 cc. Hydergine intramuscularly every other day for three months. In a few cases, it was given daily for two to three weeks, and then three times a week. When warranted, it was given for as long as six months.

Evaluation was based on the effect of the drug subjectively and objectively. Particular attention was paid to peripheral temperature change, intermittent claudication, oscillometric changes, ulcerative lesions, edema, pain, discomfort, and the general well-being of the patient. Pulse and blood pressure were observed at each interval of examination. Cardiac and renal studies were made when indicated, and blood, urine, and serology studies were also conducted.

Response to the drug was based on the following criteria:

"Good" — essentially complete relief of pain, increased walking distance, or healing of ulcerations; "moderate" — the most disturbing symptoms significantly reduced; "slight"—some degree of improvement.

Treatment with Hydergine by intramuscular injection resulted in improvement in 80% of the cases studied, and the response was especially gratifying in advanced cases of arteriosclerosis obliterans. A large number of patients remained ambulatory throughout treatment.

Hydergine is a valuable adjunct to the treatment of peripheral vascular disease. It is indicated in cases where sympathectomy is not practicable or safe.

Murphy, H. L., et al., *New York State J. Med.*, 56:391-397, 1956.

Two Cases of Amphetamine Poisoning

A review of the literature reveals reports of seven fatalities that occurred after large doses of amphetamine, but no record of hemiplegia. In animals, the occurrence of cerebral hemorrhage after amphetamine has been clearly established. Case reports on humans include one concerning a soldier who died five hours after taking 100 mg. of amphetamine. Postmortem showed marked congestion of the cerebellum.

The mental effects of amphetamine overdosage on human beings can vary from euphoria and increased cerebral activity to an acute psychotic state. Mental confusion and feelings of detachment are also common. The most serious organic effects are those resulting from intracranial hemorrhage, but hemorrhages have been noticed at other sites.

A 5-mg. tablet of amphetamine can be obtained only by a prescription, but it can be freely bought in the form of inhalants. We advocate that the public be warned of the dangers inherent in the misuse of amphetamine, or that the drug be replaced in decongestant inhalers by a less toxic substance.

Poteliakhoff, A., et al., *Brit. M. J.*, 4957:26-27, 1956.

Surgery: Principles and Practice

by J. Garrott Allen, M.D., University of Chicago; Henry N. Harkins, M.D., Ph.D., University of Washington School of Medicine; Carl A. Moyer, M.D., Washington University School of Medicine, St. Louis; Jonathan E. Rhoads, M.D., D.Sc. (Med.), University of Pennsylvania School of Medicine. J. B. Lippincott Company, Philadelphia, Montreal. 1957. $16.50

When I was in medical college, the professor of abdominal surgery never lectured to his classes on the technic of abdominal operations. He undertook to teach us how to recognize the existence of disease in abdominal organs, which of those should be treated surgically, and advised referral of such patients to a competent surgeon. This book follows the same sensible rule.

Another feature which should recommend the book is its excellent English — a great rarity among the medical and surgical texts written in the United States in the past score of years. A sentence or two from the chapter on Surgical Philosophy: "A common Americanism is to say that on such and such a date the patient was taken to surgery—meaning that the patient had an operation performed. The phraseology is reminiscent of taking sheep to the slaughter, but our basic objection to it is the implication that the operation constitutes all or most of what the surgeon has to contribute. This may apply to the 'ghost surgeon,' but not to the more creditable representative of the profession."

This is an admirable book for all doctors who wish to keep abreast with the advances in surgical diagnosis and with knowledge of what surgical specialists have to offer in the way of treatment.

Pediatric Cardiology

by Alexander S. Nadas, M.D., F.A.A.P., Harvard Medical School. Illustrated. W. B. Saunders Co., Philadelphia & London. 1957. $12.00

This book is written for the pediatrician, the general physician and the medical student. The expressed intention is to place proper emphasis on clinical recognition and management of heart diseases in children. The less required technics are given less detailed consideration. The author says he has written almost exclusively from his own experiences and has not intended to write a reference book. As might be confidently expected, the result has been a highly satisfactory text for those who have the care of the health of children.

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Liver, Biliary Tract and Pancreas

by Frank H. Netter, M.D., edited by Ernest Oppenheimer, M.D. The Ciba Collection of Medical Illustrations, Vol. 3. A Compilation of Paintings of the Normal and Pathologic Anatomy of the Digestive System. Ciba Pharmaceutical Products, Inc., Summit, New Jersey. Sold at cost—$10.50

In colors simulating the natural, the normal and pathologic anatomy of the liver, biliary tract and pancreas are portrayed, with accurate indicators for details of the pictures, and a sufficiency of text. Use of this book will greatly facilitate the acquisition of precise knowledge of these subjects.

The Doctor, His Patient and the Illness

by Michael Balint, M.D., University of Cincinnati; foreword by Maurice Levine, M.D. International Universities Press, Inc., New York. 1957. $7.50

This large subject, according to the foreword, deals with such matters as the family doctor's functioning as medical man, sociologist, confessor and general advisor to the families he serves. It's a large order. The aim is worthy. Since it may well be doubted whether there is any such person today as "the family doctor," we can indulge the hope, however low may be our expectation.

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